THE POLAR TIMES

A glacier in Taylor Valley

ANTARCTIC ACTIVITIES 1965-1966

National Science Foundation

United States Antarctic Research Program

LEGEND

- U.S., U.S. Cooperative Stations
- Foreign Stations
- Aerial Photography for Mapping
- Topographic Map Compilation
- Geological Field Parties
- South Pole-Queen Maud Land Traverse I (1964-65)
- South Pole-Queen Maud Land Traverse II (1965-66)
- Ice Movement Survey
- Map Control
- Biological Field Parties
- Ice Shelf Survey
- Ship-Based Biological Investigations
- Geophysical Investigations

STATION DESCRIPTION

	BYRD	HALLETT (U.S.-NEW ZEALAND)	McMURDO	PALMER	PLATEAU	POLE	USNS ELTANIN
LOCATION	LAT. 79°59'S LONG. 120°00'W	LAT. 72°19'S LONG. 170°18'E	LAT. 77°51'S LONG. 166°37'E	LAT. 64°45'S LONG. 64°05'W	LAT. 79°30'S 40°E	LAT. 90°S	Western Terminus-Wellington Eastern Terminus-Valparaiso
FEET ABOVE SEA LEVEL	4,971	16	102	25	-	9,184	-
ESTABLISHED	1957	1957	1956	1965	1966	1957	1962
TERRAIN	ON INLAND ICE	ON GLACIAL MORAINE	ON VOLCANIC ASH	ON BEDROCK	ON INLAND ICE	ON INLAND ICE	-
METHOD OF SUPPLY	AIR	AIR SEA	AIR SEA	SEA	AIR	AIR	-
NUMBER OF BUILDINGS	15	10	70	2	9	11	-
MEAN ANNUAL TEMPERATURE (°F)	-19.6	+4.2	+0.1	+20 (estimated)	-	-56.7	-
MEAN TEMP. (°F) DEC., JAN., FEB.	+1.6	+28.2	+21.6	+30 (estimated)	-	-25.2	-
APPROXIMATE WINTER PERSONNEL (SCIENTISTS) (NAVY)	9 17	SUMMER STATION ONLY	7 260	5 4	4 4	7 13	scientists 34 (year round ARSTS crew 48 operation)
AIR DISTANCE FROM McMURDO (STATUE MILES)	865	280	6 -	2,340	1,350	830	-

American Polar Society

AUGUST HOWARD, SECRETARY
98-20 62nd DRIVE (APT. 7H)
REGO PARK 74, NEW YORK
TWining 6-6892

Official Publication
The Polar Times

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Winter 1966

Dear Member:

Your Society takes pleasure in sending you No. 61 of THE POLAR TIMES. We are proud to record that on the Rockwell Flight over both the North and South Poles last November 14 to 17 there were six members aboard. They are Prof. Edward C. Sweeney of our Board of Governors, Col. W. F. Rockwell, Col. Bernt Balchen, Rev. Anderson Bakewell,, John DuBois and Lowell Thomas, Jr.

Your Society regrets to record the death of its fifth Honorary Member, Prof. Frank Debenham of Cambridge, England. A geologist on Captain Scott's second and last expedition to Antarctica he was the founder and first director of the Scott Polar Research Institute.

The cover photo on the current issue of THE POLAR TIMES is from "This Is Antarctica" written by Joseph M. Dukert, a member of the Society. A review of his book is in the current number. We commend it to you. Two photos on the back page are by Bjorn Bolstad of Nutley, N.J., another member. He visited the Russian base Vostok in the Antarctic several hours after flying there from McMurdo Sound.

The Society looks to its members for help in enrolling new members. Please send the Secretary names and addresses of your friends to whom membership invitations will be sent; also polar clippings and articles for use in THE POLAR TIMES.

For members whose dues are now payable we enclose a renewal card and reply envelope. You help your Society a great deal by renewing for three years, although one and two year renewals are also acceptable.

Recent issues of THE POLAR TIMES are still available at 50 cents each. Please remit with your order.

Thank you for your continued interest.

Sincerely yours,

Robert A. J. English
Rear Admiral, U.S. Navy (Ret.)
President

The Polar Times

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No. 61. DECEMBER 1965.

U.S. Scientists Land On Icecap to Set Up South Pole Outpost

WASHINGTON, Dec. 17 (AP) —An advanced party of American scientists and Navy men landed by airplane early today on a desolate icecap 630 miles from the South Pole. They plan to establish the nation's most remote scientific outpost.

The National Science Foundation said that a Navy ski-equipped LC-130 Hercules aircraft—the aerial workhose of the Antarctic—had brought the party to a windswept ice plateau 11,500 feet high. It is a spot where the temperature can get down as low as 130 degrees below zero in the Antarctic winter, which begins in March. In the summer, 47 below zero is about the coldest.

The landing was made after an 1,150-mile, nonstop flight from McMurdo Station, main United States center in Antartica.

Site of the proposed plateau station—with respect to the South Pole—is in the general direction of Madagascar in the Indian Ocean.

When the tiny, scientific outpost is established, it will be manned by four scientists and four Navy men, said the science foundation, which sponsors the over-all United States Antarctic Research Program. The Navy's Deep Freeze forces provide logistical support.

At the station, scientists will seek information about the Antarctic weather; the earth's magnetic field; naturally produced, very low frequency radio signals near the earth, and the aurora australis, or southern lights.

The foundation said that Navy Seabees will begin building the new station immediately.

The main station will be composed of four-semi-tractor-like units each 8.5 feet high, and 30.5 feet long. They will be put together end-to-end in pairs. Attached to the main station will be a weather balloon inflation shelter.

Robert B. Flint Jr., a radio-scientist from Stanford University, will be the station's scientific leader. Lieut. J. L. Gowan, a Navy doctor from Union, S. C., will be officer-in-charge of the station.

The scientists and Navy men of the station will have only radio contact with the American station at the South Pole and other Antarctic outposts, as well as ham radio contact with relatives in the United States, for eight months of the year. When the Antarctic winter sets in, no planes fly over the desolate land, except in an extreme emergency.

Antarctic Rocks Tell of a Vast Land

By WALTER SULLIVAN
The New York Times

BERKELEY, Calif., Dec. 28 —Geologic discoveries of the last 10 years have demonstrated "beyond a doubt" that until comparatively recently the Antarctic continent was not isolated from the rest of the world, it was reported here today.

That region, now sheathed in ice, seems to have once been attached to the steamy subcontinent of India. And although it is now devoid of large land animals, during the period when the rest of the world was inhabited by dinosaurs Antarctica too apparently had its population of reptiles.

Dr. Laurence M. Gould, retiring president of the American Association for the Advancement of Science, said the evidence in Antarctic rocks pointed strongly toward the possibility that that continent was once the "keystone" of a gigantic land mass formed from India and all Southern Hemisphere land areas.

Dr. Gould, geologist and scientific leader of Rear Adm. Richard E. Byrd's first expedition to Antarctica, has in recent years served as chairman of the Committee on Polar Research of the National Academy of Sciences.

In his presidential address to the association this evening he also said that Antarctic waters, acre for acre, were potentially the richest in the world as a food source.

The fish are walled in by the Antarctic "convergence" — an abrupt temperature change where polar waters slip under those of temperate seas. Ninety per cent of Antarctic bottom fish species are found nowhere else because of this barrier.

The idea that the southern lands were once a single continent that broke up and drifted apart is far from new, but it has long been controversial.

Dr. Gould said the discovery of a layer of tillites 900 feet thick in the Horlic Mountains of Antarctica, coupled with similar contemporaneous deposits in South America, India, Africa and Australia, implied that these regions must once have been close together.

All these deposits date from the late part of the carboniferous, or coal-forming, period, 300 million years ago.

Tillite is rock that appears to have been formed from gravel and left by a glacier.

The similarity of both fossil plants and fossil animals from all these areas during past geologic periods also points to their close association, Dr. Gould said.

"In the light of the new information from Antarctica," he asserted, "there is but one explanation, and that is extensive continental glaciation—an explanation hardly consistent with present land relationships."

The hypothetical giant continent, known widely as Gondwana Land, seems to have existed until late Mesozoic time, some 50 million years ago, before it fragmented, he said.

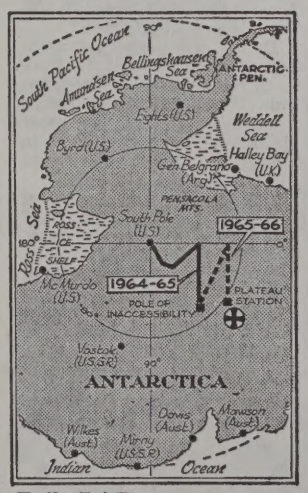
The Mesozoic was the age of dinosaurs. Hence it appears likely that Antarctica was populated by reptiles and, possibly, by early mammals.

Dr. Gould pointed out in an interview that scientists from Ohio State University had found fossil trails in Antarctic rock that they believe were left by ancient reptiles.

The fact that no dinosaur remains have yet been found is not surprising, he said. They are hard to discover even on a continent that is free of ice and has been thoroughly explored.

Dr. Gould told of current efforts to assess the extent of worldwide air pollution by examination of Antarctic snow and ice, both from recent precipitation and from that of a couple of hundred years ago.

There has been some evidence from Greenland ice that the lead content of the air has increased alarmingly in recent years. This is being checked in Antarctica.



The New York Times

New American base planned in Antarctic at cross. Tractor routes are shown by solid and dashed lines.

3 U.S. Navy Ships Push Iceberg From Channel

CHRISTCHURCH, New Zealand, Dec. 30 — Three United States Navy icebreakers today shoved a massive iceberg totaling almost 2.5 million cubic yards half a mile to get it out of the McMurdo Sound shipping channel, which it threatened to block.

The Glacier, Atka and Burton Island took on the iceberg, 100 feet long, 200 yards wide and an estimated 300 feet below the waterline as well as 70 feet above it, after the Glacier alone had been unable to control the movement of the iceberg.

The Glacier, largest and most powerful of the three icebreakers, could push the iceberg but not control its direction.

The Glacier will remain in the McMurdo Sound area until late January, when she will proceed to Wellington for resupply and a brief rest. In April she is scheduled to return to her home port of Boston.

U.S. Scientists to Be Guests Of Russians in Antarctica

MOSCOW, Aug. 20 (Reuters) —American scientists will be guests on the 11th Antarctic expedition of the Soviet Union, the Soviet press agency, Tass, reported today.

Other guests will include scientists from Argentina, New Zealand, Japan, Hungary and Poland.

Leonid Balakshin, a department head at the Arctic and Antarctic Institute in Leningrad, said that 50 foreign scientists had already spent winters at the Mirny Observatory and other Russian stations near the South Pole.

"The exchange of polar scientists is striking evidence of the constructive cooperation between Soviet and foreign explorers on the sixth continent," Mr. Balakshin was quoted as saying.

Antarctic Cooperation Hailed

By Howard Simons
Washington Post Staff Writer

May 21

President Johnson called attention yesterday to a really cold war being waged—and won — through international cooperation.

High Government officials talked to Mr. Johnson about the progress being made and the benefits they hoped would come from the peaceful conquest of the world's highest, windiest and coldest continent —Antarctica.

In response, the President said:

"There is much tension and discord in the world as we meet here this morning, and so it is particularly pleasing to me to have met with the Antarctica Policy Group a little earlier and to have heard their encouraging reports of practical, peaceful cooperation among the nations of the earth."

Among the many scientific activities discussed with the President yesterday, the officials noted the intriguing behavior of two Antarctic natives—the Adelie penguin and the Weddell seal.

The Weddell seal appears to be uniquely adapted to the harsh polar environment. Of particular interest is the seal's diving ability. In roughly 20 minutes, the seal can plunge to 1000 or more feet beneath the ice with no ill effect. A similar feat would either crush a man on the way down or cause him to burst on the way up.

Not so the Weddell seal which, recent experiments indicate, has a little-understood neurological mechanism that permits the seal to slow its heartbeat appreciably when deep diving. This aspect of the seal's survival ability has stimulated considerable research, as has the seal's uncanny communication and navigation mechanisms.

Apparently the Weddell seal emits a wide variety of sounds, which serve both as an undersea communications system among seals and a way, much like sonar, for the seals to locate breathing holes or pockets of air during the long polar winter.

The Adelie penguins have an uncanny navigation system, too. Recent experiments have show that the penguins possess a highly developed sun compass, which coupled to an internal biological "clock," permits them to waddle back to their nesting place after being taken 1700 miles from home.

The President learned that the uprooted, flightless penguins generally follow a northeasterly direction once they "lock" onto the sun. This invariably takes them to water and their breeding grounds. To gain further insight into the penguin's homing abilities, scientists now plan to "wire" the birds and use a ground-to-air monitoring system to follow their trek home more precisely.

The addition to the discussion of these and other recent scientific findings, the President also heard about some promising research activities. For example, National Science Foundation director Leland J. Haworth noted there are about eight million miles of ice, up to three miles thick in the Antarctic. This is roughly 2 per cent of the earth's total water.

"It is important for us to know," Haworth said, "what is happening to this enormous reservoir of frozen water since any rapid change could change our climate and the ocean levels.

Haworth also noted that the layers of Antarctica's snow represent a kind of frozen calendar, which should reveal "chapters in man's history such as the beginning of the first major lead smelting, the use of leaded gasoline, and the first nuclear explosions."

For his part, President Johnson expressed keen interest both in the scientific quest and in the cooperative international manner in which the quest is being made. In a brief statement after meeting with the Antarctic experts, the President noted that just four years ago the Antarctic Treaty, which essentially set that continent aside as a scientific preserve, came into effect.

"Since then," Mr. Johnson said, "it has proved a most valuable tool of international agreement, and a most useful way of freeing Antarctica from destructive confrontations between nations."

The President then summarized U.S. objectives in Antarctica. These are: to endorse the Treaty and pledge to keep Antarctica peaceful; to further endorse international cooperation in Antarctica; to support, "with all of our resources" continued research there; and to look to the day when Antarctic research "will yield resources which every nation nees and every nation can use."

DDT Traces Found In Antarctic Animals

WASHINGTON, July 10 (AP)—Traces of the pesticide DDT have been found in seals, penguins and fish in Anarctica, a continent where there is no record of use of the pesticide, the National Science Foundation said today.

The foundation made public a resumé of a paper presented by Dr. John L. George of the Pennsylvania State University at a symposium at the Monks Woods Experimental Station in England. He conducted his reearch under a foundation grant.

Dr. George reported finding frequent traces of DDT in specimens of Adelie penguins and Weddell seals. Traces were found in some species of fish, but not in others. No traces were found in polar snows.

Nor did he find traces of any pesticide other than DDT —an unexplained mystery, Dr. George said.

DDT was first released for civilian use in 1945, the foundation said, and in 20 years it has found its way throughout the globe.

Geological Survey Kept Busy

WASHINGTON—Each year about 3 per cent of the total area of the United States is mapped by the Geological Survey (total area of the 50 states is 3,619,595 square miles). 182,-500 square miles of Antarctica were photographed for mapping in the 1964-65 season. The continent's total area is 5,300,000 square miles (considering all ice cap areas to be part of the continent).

Have Stethoscope; Will Travel

Somewhere in the United States there is probably a doctor who is fed up with feminine backaches, executive ulcers and midnight telephone calls about pediatric sniffles.

The National Science Foundation in Washington will provide surcease for this bored medic and pay him $15,000 a year to cruise for two months at a time along the Antarctic ice pack and elsewhere in the Pacific Ocean. NSF wants the doctor to look after the health of 48 crew members of the research ship Eltanin and its working passengers, 36 scientists in the fields of oceanography, meteorology and biology.

The Polar Times

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AUGUST HOWARD, Editor

THE POLAR TIMES highly recommends "The Polar Record," published by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

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Coldest Day in History Recorded in Antarctica

WASHINGTON — It was a cold, very cold day in August when the temperature dropped to 127 degrees below zero F. — the lowest ever recorded on earth.

The record was set at Vostok, Antarctica, some 800 miles from the South Pole, on Aug. 24, 1960. The earth's coldest region, Antarctica is most frigid when the northern hemisphere is enjoying summer.

Dr. Paul Siple, scientific leader of the first expedition to spend the winter at the South Pole, described in National Geographic the sensation of stepping out into 100 below - zero weather.

"The familiar sharp feel of the cold was more searing than usual," Dr. Siple wrote. "When I faced the light breeze, the vapor in my breath blew back into my face and condensed instantly on the gray straggles of my 10-month-old beard.

"Instinctively I held up my hand to protect my nose and cheek from the fury of the cold; it felt, paradoxically, like the attack of leaping flames. At temperatures such as this a nose can freeze in seconds with a needle-sharp prick, or 'ping, as we called it.

"Within a few steps my Army polar boots, made of a special low-temperature rubber composition, froze solid as cast iron."

The temperature was minus 102 degrees F. — the climax of a 93-hour period when the thermometer had never risen above minus 91 degrees.

At the South Pole, Dr. Siple endured 169 consecutive days with temperatures below minus 40 degrees, and the coldest month averaged minus 80 degrees. In most cold areas of the world, the coldest days are characterized by calmness. The wind blew all winter long at the South oPle, however, averaging between 15 and 20 miles an hour most months.

"Nevertheless," Dr. Siple wrote, "we found we could work outside, even in the wind, at temperatures below -80 degrees. One possible reason is the altitude. At 9,200 feet air is thinner and has a lower conductivity, hence less 'cooling power.' One man stayed outside for four hours without ill effect when the temperature was very close to -100 degrees.

"But if our polar atmosphere was less chilling, it also contained less total oxygen than air at sea level. Newcomers, especially, found themselves quickly out of breath when they engaged in heavy labor."

The late Rear Admiral Richard E. Byrd, who contributed many articles on his polar explorations to National Geographic, found the atmosphere in Antarctica "curiously exhilarating.' '

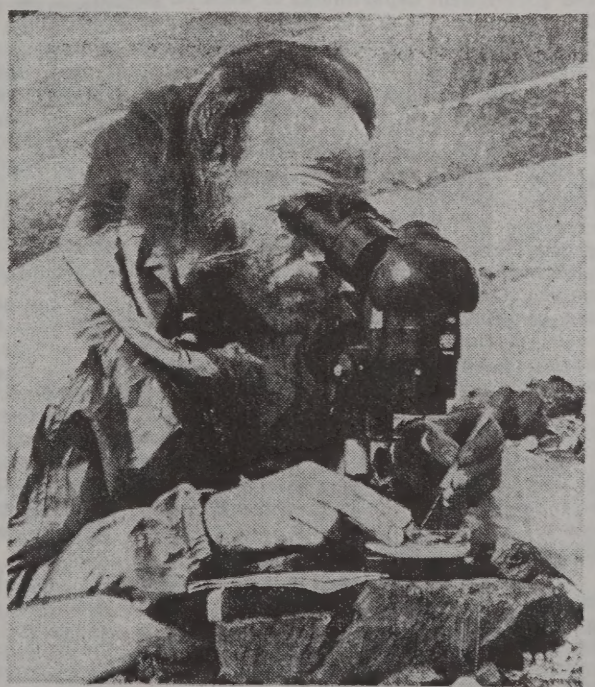
"While the winelike quality of winds over the ice mountains doubtless is partly psychological," admiral Byrd wrote, "there remains the fact that this air is a slightly different mixture of gases from that of air in the middle latitudes. It contains, for example, less than a third as much water vapor as atmospheric samples collected at the Equator."

This low humidity, heat loss from reflectivity of snow, and poor flow of air from warmer regions all contribute to the extremely low Antarctic temperatures. The average annual temperature at the South Pole is minis 60 degrees F.

In the polar summer, however, temperatures along the coast may venture above freezing, causing men at the colder inland stations to call the coast the "Banana Belt."

Antarctic Icecap Studied

WASHINGTON — Geological Survey engineers are studying the movement of the Antarctic Icecap. They have erected a "picket fence"—a line of survey points—across a 60-mile stretch of Marie Byrd Land. Periodic relocation of these points will enable them to determine the amount of the direction of the ice plateau's movement.



"Bug hunter" Dr. J. Linsley Gressitt, entomologist from Hawaii's Bishop museum, examines soil of a rock-strewn Antarctic slope in search of insects and mites. They have been found surprisingly close to the South Pole.

Mighty Cold Down There

Washington, July 22 (AP)—The coldest weather ever recorded at the U.S. Navy's Amundsen - Scott South Pole station was reported last night —113.2 below zero.

Previous low temperature for the station, the Navy said today, was 109.8 below—registered in July, 1963.

TENTH 'FREEZE' IS SHAPING UP

CHRISTCHURCH, New Zealand (AP) — The 11th consecutive "Deep Freeze" task force is taking shape to continue U.S. study of the antarctic.

About 30 American aircraft and 11 ships plus a New Zealand Navy tanker, will participate. More than 3,000 men will be involved in the mission.

One of the most important goals of the program will be to establish a scientific research station 13,000 feet above sea level on the polar plateau in the heart of Queen Maud Land.

The commander of the task force, U.S. Navy Rear Adm. F. E. Bakutis, said an other major venture will be a comprehensive geological survey of the remote Pensacola Mountains.

Ships will be used to a greater extent to transport men to and from the antartic because of the potential danger in using wheeled aircraft to land on the runway at McMurdo Sound.

A crack developed on the runway last season, and it is feared that this may have become more acute.

F.A.O. Calls for Global Rules To Protect Whale Industry

ROME, June 29 (Reuters)—The Food and Agriculture Organization has warned that the regulation of whaling "must eventually, and as soon as possible, be achieved at the global level."

Sidney Holt, chief of the F.A.O.'s fisheries biology branch, speaking on behalf of the United Nations agency's director general at a private meeting of the International Whaling Commission in London Monday, said:

"This is now very urgent in view of the need to establish without reasonable doubt the levels of sustained yield of each species in the seasons 1966-67 and 1967-68."

Plans 8000-Foot Hole in Antarctic Icecap

By Howard Simons
Washington Post Staff Writer

The United States plans to drill 8000 feet through the south polar icecap to recover ancient dust locked there in a kind of frozen calendar.

The core sampling, as it is called, is expected to begin in the summer of 1967 or the summer of 1968 at the Byrd Station in Antarctica.

Timing will depend on the progress of a similar drilling operation under way in Greenland. The National Science Foundation, which will sponsor the Antarctica drilling project, plans to use the same thermal drill now boring into Greenland's frozen depths.

In addition to the recovery of particles carried down with snow over thousands of years, Foundation scientists also hope to take the temperature of the south polar icecap, an unknown of considerable scientific interest.

At the conclusion of drilling by the U.S. Army in Greenland last summer, a depth of 1800 feet had been reached.

The expectation is that during the coming summer the thermal drill will reach the bottom of the Greenland ice at 5000 feet at which time a mechanical drill will be used to further probe the underlying earth and rock.

Both the current Greenland project and the proposed Antarctica project have aroused interest among a number of scientists attending the American Geophysical Union meeting here.

Yesterday, two teams of scientists already collecting dust from Greenland and Antarctica in a quest for material from outer space, presented reports on their findings to date.

One team, E. L. Fireman, J. Defelice and C. C. Langway Jr., of the Smithsonian Astrophysical Observatory and the U.S. Army, think they have recovered material from outer space from Greenland ice.

They think so because their dust samples show a different type of argon than virtually all terrestrial samples measured with the single exception of particles scraped off a remote bottom area of the Pacific Ocean.

In Fireman's view, the Greenland dust has been subjected to solar winds for tens of thousands of years. He bases this conclusion on the hypothesis that the solar wind is poorer in a particular kind of argon than is the earth's atmosphere which is made richer by argon released from the soil.

Moreover, Fireman said in an interview, the chemical composition of the Greenland dust is unusual in that it has very little magnesium but is plentiful in iron oxide or magnetite.

M. B. Giovinetto of the University of Wisconsin and R. A. Schmidt of the National Aeronautics and Space Administration are less certain about the origin of their dust samples collected from a 165-foot core of Antarctic ice—a length equivalent to 400 years.

What these scientists reported yesterday was a close match between known volcanic eruptions and relatively high concentrations of particles called spherucles in the ice calendar.

Schmidt cautioned that the apparent presence of volanic matter in the ice makes the job of distinguishing between earthy dust and cosmic or lunar dust that much more difficult.

McMurdo Sound Flights Resume

CHRISTCHURCH, New Zealand (AP)—Air traffic to U.S. bases in the Antarctic resumed Oct. 1 with the end of winter there.

Four ski-equipped Navy Hercules transports left just after midnight for the 2,250-mile flight to the main American base at McMurdo Sound.

The planes carried 4,300 pounds of mail for the 289 Americans who have spent six months of winter isolation on the southernmost continent.

Antarctica projects

The Christian Science Monitor

Washington

This year, with some $7,500,000 to spend on Antarctic research, the National Science Foundation is sending 200 scientists from more than 50 universities, research centers, and government departments to work on 30 field projects. Some of the participants came from Japan, New Zealand, Germany, Norway—even the Soviet Union.

They will continue a lot of projects they have been working on ever since NSF took over Antarctic research in 1958.

These include study of cosmic rays, aurora, airglow, very-low-frequency electromagnetic waves, and ionospheric phenomena; of the earth's magnetic field, gravity, shape; of the currents, temperatures, chemical properties of Antarctic waters. They will continue studying the living conditions of Antarctic insects, fish, seals, marine algae, the breeding and behavior of penguins, skuas (gull-like birds), and albatrosses.

Some of their most interesting projects though, will be new.

There is, for example, the outpost they are setting up, to be manned year-round by 4 scientists and 4 Navy men, 600 miles from nearest neighbors, and with temperatures that get down to 130 degrees below zero (F).

There is the second leg of a 5,000-mile zigzag they are making across the vast unexplored heart of the Antarctic continent—searching for insects, mapping the geology, measuring the earth's gravity and magnetism.

Then there is the massive scientific assault on the remote Pensacola Mountains, 1,200 miles from McMurdo base, where six separate scientific projects will make gravity, seismic and magnetic surveys, study insect and plant life—if any; and do aerial photography and mapping.

A few rugged scientists from Ohio State University are going to drill through and tunnel under a small glacier. They want to study the movement of glaciers and try and discover a basic-flow law for ice.

Scientists from California's Institute of Technology are going to Antarctica, of all places, to study the increase in lead poisoning in the atmosphere, presumably due to motor-exhaust fumes.

They are going to melt snow and ice taken from a 120-foot shaft slanting under the ice near Byrd Station, that reflects 60 years of ice accumulation. They will then try and determine the concentration of common lead precipitated on the ice surface over those decades, and the movement of lead in the atmosphere. The supposed health hazard of this metal is a matter of considerable concern to many scientists.

In one of the most unusual experiments, engineers from the University of Washington will begin year-round research using a 21-mile-long antenna laid on the ice surface near Byrd Station. With it they will study the earth's ionosphere. They also will use it as a radio navigation aid.

One thing scientists never have been able to determine is whether the vast ice sheet covering Antarctica (7 million cubic miles) which hides 98 percent of the continent, is expanding, contracting—or remaining static.

A party from Grand Valley State College, Michigan, will travel 600 miles by motor toboggan to remeasure stakes set out on the Ross Ice Shelf three years ago. Another party from Ohio State University will remeasure from the air a network of 138 markers set out two years ago between Byrd Station and the Whitmore Mountains 230 miles away.

These are only some of the projects that are drawing 200 scientists from all over the United States — and abroad — to Antarctica.

Antarctic Tests Hint of Gains to Come In World Communications, Food Supply

By Howard Simons
Washington Post Staff *May 13*

Recent experiments in Antarctica have generated exciting prospects among Government officials and scientists for improving communications, the world's food supply and fundamental knowledge of the earth and its environment.

Two such experiments, in particular, have been cited in the last month by President Johnson, Assistant Secretary of State Harlan Cleveland and scientists of the National Science Foundation, which finances the United States Antarctic research program.

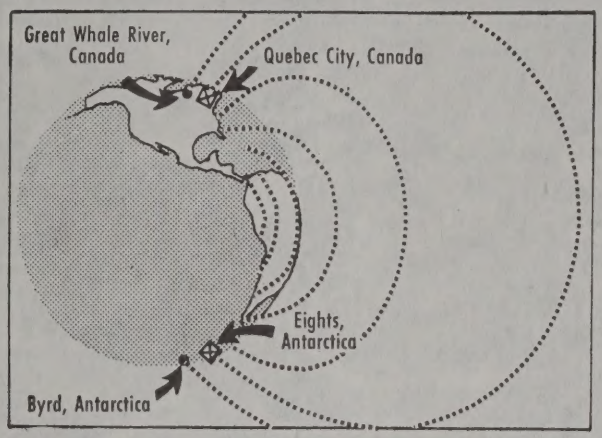
One experiment has to do with a 21-mile-long antenna stretched across the south polar icecap at Byrd Station by engineers of the University of Washington. The other involves findings from the oceanographic vessel Eltanin indicating that the Antarctic seas play a highly critical role in spreading life-sustaining nutrients throughout the world's oceans.

Experiments with controlled, very low frequency radio signals generated by the lengthy antenna, for example, could lead to new methods for long-range radio communication, notably during solar storms.

More information on the plants and animals nurtured on Antarctic nutrients, on the other hand, could better define the reserves of seafood for man and how he can best grow, harvest and use such food.

The effect of stretching the three-quarter-inch, plastic-encoated copper wire 21 miles across the ice is comparable to hanging an antenna more than one mile in the air. This is so because the 7000-foot-thick, salt-free ice acts as a remarkably good insulator.

When signals from the antenna are fed into the magnetic field in Antarctica, they are flung far into space to return with nearly undiminished energy at an opposite point in the northern hemisphere. In the case of Byrd Station, signals from it turn up at a Canadian science station at Great Whale River on the southeast side of Hudson Bay.



The Washington Post

Surges of energy sent from one area of the earth travel far out into space along magnetic lines of force to return strongest at an opposite point or conjugate area halfway around the planet. Thus, signals broadcast at the American Byrd Station in Antarctica turn up at Great Whale River, and from Eights Station in Antarctica at Quebec City, Canada. Scientists and engineers are using this phenomenon to study long-range communications, the upper air, the earth's magnetic field and other geophysical challenges.

Nature, it seems, bounces very low frequency signals from North to South with alacrity. The signals are called "whistlers" and are attributed to lightning. What happens, apparently, is that the whistler gets "trapped" in the earth's magnetic lines of force and bounces back and forth from pole to pole.

Because very low frequency communication has never been fully exploited and because it may offer potential for communications during those periods when a noisy sun blacks out higher frequency communications on earth, scientists are eager to learn more about whistlers and the behavior of very low frequency communications.

Hitherto, science had no way to produce whistlers. Moreover, lightning storms are rare in Antarctica. Now, however, the 21-mile antenna promises to change all this, for such an antenna can produce man-made whistlers.

The antenna is both a sender of signals and a receiver of signals —natural and man-made. Thus, physicists plan to use the antenna to study the characteristics of the upper air and ionosphere and how they are affected by solar radiation.

At the same time, the Foundation has already installed equipment to interrogate orbiting geophysical observatories in space as they pass over Byrd Station. In this way, it will be possible to make simultaneous ground and space measurements on the earth's atmosphere and magnetic field.

But the interest does not stop there. The same antenna, along with another somewhere else, could serve as a navigation aid for ships at sea. And, finally, one scientist has proposed attempting to learn whether the antenna can be used to produce a pole-to-pole "coaxial" cable for telecommunications.

As for the Antarctic seas and the world's food supply, it now appears that ice from the frozen continent slips into the sea and, because it is colder than the water, slips to the bottom. This action loosens trace amounts of chemical elements that are then carried along until the cold Antarctic waters meet warmer waters from the equatorial regions.

Accordingly, two things happen. The first is that cold and warm water generate currents, which then circulate throughout the oceans. The second consequence is that the trace elements or nutrients are sown throughout the seas. These trace elements are vital to the well-being of tiny sea plants and animals that, in turn, are vital to the life of larger fishes. Hence, in a sense, a significant part of the sea's food chain appears to begin with ice melting in Antarctica.

"It was the richness of these oceans that brought our sailors first to Antarctica and led to the early exploration of the continent," said Leland J. Haworth, director of the Foundation. "It may be the marine resources of Antarctica that will again become Antarctica's chief benefit to mankind."

A TRAWLER WITH 44 STRIKES AN ICEBERG

GODTHAAB, Greenland, Nov. 25 (AP)—A disabled German trawler broke her towline today and smashed into an iceberg south of Greenland. The vessel was still afloat in blizzard conditions hours later with 44 crewmen reported aboard.

Some were injured among the crew of 44 in the 1,102-ton Burgermeister Smidt of Bremerhaven.

The collision occurred in the same dangerous waters where in January 1960 a Danish passenger-cargo liner hit an iceberg and sank within minutes with a loss of 95 lives.

The German trawler Weser was reported standing alongside the Smidt awaiting favorable conditions to rescue crew members.

GODTHAAB, Greenland, Nov. 26 (AP)—All 44 officers and crew members of a German trawler that struck an iceberg yesterday were rescued today.

The crewmen of Buergermeister Smidt, 1,102 tons, of Bremerhaven, were taken aboard ships that rushed to the scene and had been standing by, waiting for stormy seas to subside.

As far as was known here, the trawler was still locked with the iceberg when the crew left in rubber boats.

TOKYO SCIENTISTS SAIL TO ANTARCTIC

Japanese Icebreaker Starts Vast Exploratory Mission

The New York Times

TOKYO, Nov. 20—Hundreds of well-wishers gave a hero's send-off today to the 222 men aboard the Japanese Navy icebreaker Fuji, a floating laboratory with a battering ram for a bow. The gleaming buff and white vessel left Tokyo's Harumi Pier today on a long voyage of scientific exploration in frozen Antarctic seas.

A diffident, middle-aged civilian, wearing a professional black suit and round spectacles with thin black rims, was the center of attention along with Capt. Toshiji Honda, the commander of the ship.

The man in the black suit was Prof. Masayoshi Murayama, leading his third Antarctic expedition. Beside him was another scholarly civilian, Dr. Akira Muto, a physician, who will head the team of 18 men who are to spend the long, dark months of the next Antarctic winter at the lonely Japanese shore base on Ongul Island ,off the Prince Harald Coast of Lützow-Holm Bay.

"The Fuji contains the best equipment that the Japanese electronic industry can produce," Professor Murayama said as he pointed to the white masts festooned with antennas in various shapes and lengths. "We hope to use it to add to man's knowledge in a number of scientific fields."

He punctuated his conversation, in fluent English, with short, stiff Japanese bows to one well-wisher after another. A brass band was playing "Aloha Oe" and "Auld Lang Syne," and women were pulling handkerchiefs from pouchlike silk kimona sleeves to wave at the vessel.

The Fuji's departure was hailed here as a potential milestone in Japanese contributions to man's understanding of his environment.

The 340-foot, 7,760-ton vessel, built by the Nippon Kokan Company at Kawasaki, near Tokyo, can smash her way through ice packs 24 feet thick.

On her broad foredeck the Fuji carries three helicopters and a nine-ton snow car for Antarctic exploration and ferry service between the ship and the shore base. The helicopters wil lleave Dr. Honda's team—and two dogs — ashore next January for the long winter's observation of various Antarctic phenomena, such as the mysterious lights in the sky called the Aurora Borealis.

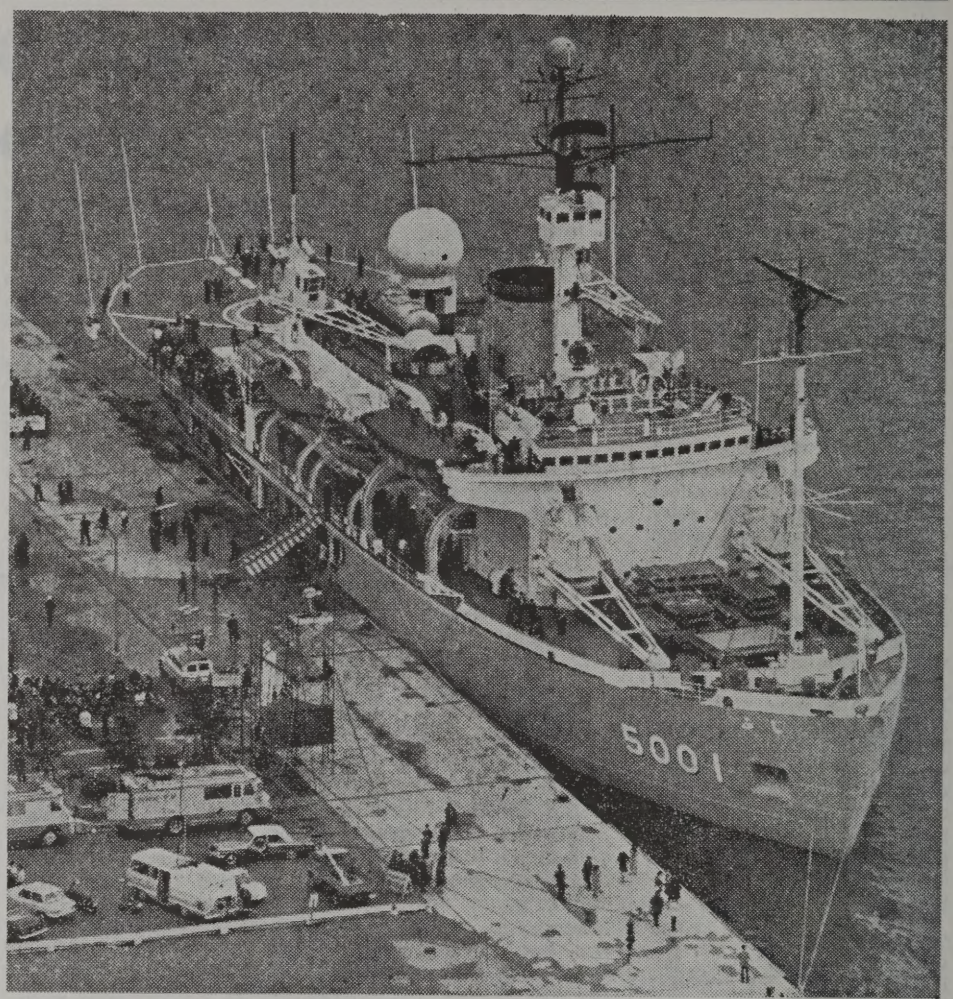
The base, called Showa (enlightened Peace) after the name of Emperor Hirohito's 40-year reign, was established by Japanese scientists in 1956 but has been closed for the last three years pending the completion of the Fuji and her advanced electronic equipment. The 40 scientists and 182 crewmen making the current trip make up Japan's largest Antarctic expedition to date.

Observations planned by the expedition are linked to worldwide scientific activity during the International Quiet Sun Year, when solar conditions will be relatively free of disturbances. For the Japanese project, 11 new winterproof buildings will be constructed to make the Showa base twice its present size.

Japanese scientists will study the Aurora Borealis with the aid of a 360-degree color camera, whose lens can take in the entire firmament, and special devices that can record the feeble radio waves from the celestial lights.

Some of the studies will concern the life of the penguin, the solemn Antarctic bird that looks like it is wearing a dress suit. The team will test, under Antarctic conditions, techniques developed in Japan for growing vegetables on the ice under a dark sky with special fertilizers and artificial light.

With the huge snowcar, which has a range of 3,600 miles, the scientists will make ground explorations preparatoory to a future Japanese expedition to the South Pole. Other studies will include probes of the upper atmosphere to analyze electromagnetic phenomena.



THE NEW JAPANESE ANTARCTIC SHIP Fuji (7760 tons), which has sailed from Tokyo.

An 87-Mile Long Iceberg

MOSCOW, Dec. 20 (AP)—An 87-mile-long iceberg has run aground near the Soviet Antarctic station in Enderby Land, Tass reported today. The press agency quoted Yevgeny Korotkevich, deputy director of the Arctic and Antarctic Institute in Leningrad, as saying it was perhaps the biggest iceberg ever seen. Its area above water was estimated at 2,700 square miles.

28 End Stint

BYRD STATION, Antarctica — For the first time in seven months 28 wintering-over personnel of this Antarctica city under the snow saw new faces, read mail from home and ate fresh vegetables when the first plane of the new Deepfreeze season landed on the skiway at Byrd Station.

Aboard were Rear Adm. F. E. Bakutis, Commander Naval Support Force Antarctica, and Capt. H. M. Kosciusko, Commander Antarctic Support Activities. They were hosted at a "welcome aboard" party which included champagne and cake.

The 19 Navy men were relieved October 18 and have started the long trip back to the states and new duty stations. The remaining scientific research personnel will return home as various programs are concluded or new scientists arrive.

ARGENTINES PRESS ANTARCTIC CLAIM

View South Pole Expedition as Affirmation of Frontier

The New York Times

BUENOS AIRES, Dec. 11 — Argentina pointedly reasserted her territorial claims in Antarctica today following the arrival of the first Argentine expedition at the South Pole.

Statements by the armed forces and the Foreign Ministry hailed the dramatic 45-day overland journey by a 10-man team as an affirmation of Argentina's southernmost frontiers.

Col. Jorge Edgard Leal, leader of the expedition, which was made up of army personnel, reported by radio that the pole was reached at 9:30 A.M. yesterday and that an Argentine flag was solemnly unfurled.

The Argentine presence in the polar region was the latest in a series of moves by the Government of President Arturo U Illia to assert Argentina's territorial rights.

This policy reflects the moderately nationalistic tradition of the ruling People's Radical Civic Union party and has the enthusiastic support of the armed forces.

In one of its biggest diplomatic successes in recent years, the Argentine Government last month obtained an overwhelming vote in the United Nations in favor of its position that Britain must agree to negotiate Argentina's claim of sovereignty over the Falkland Islands, just north of the Antarctic Ocean.

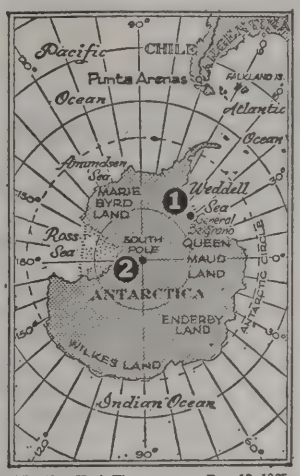
The Antarctic expedition set off Oct. 26 from the General Belgrano army base at the edge of the Antarctic Continent, about 725 miles northeast of the Pole. The base is in the triangle of land Argentina claims as her "Antarctic sector."

Despite numerous conflicting territorial claims, an international agreement—whose signatories include Argentina, Chile, the United States, Britain and the Soviet Union—provides for cooperation in scientific research and exploration.

The Argentine team was the first to reach the Pole by land since Sir Edmund Hillary's expedition in 1957 and the fifth since the Norwegian explorer Roald Amundsen arrived at the Pole Dec. 14, 1911, the first to do so.

Strapped for Water

Christchurch, New Zealand, Dec. 17 (Reuters)—The American Antarctic base at McMurdo Sound is suffering from a shortage of clean snow, and this means a reduced water supply.



The New York Times Dec. 12, 1965

Argentina reasserted her Antarctic claims after an expedition traveled from a base at General Belgrano (2) to the South Pole (3).

FLYING OBJECT SEEN IN ANTARCTIC SKIES

SANTIAGO, Chile, July 8 (AP) — Official reports came from the Antarctic today that a mysterious lens-shaped flying object, maneuvering and moving at great speed, was sighted last Saturday.

A Chilean base commander in the Antarctic reported the object was "yellowish red, changing to green, yellow and orange."

In Buenos Aires, the Navy issued a communiqué saying personnel at Argentina's Antarctic base had seen the flying object and photographed it.

Mario Jahn Barrera, commander of the Chilean base, told the Defense Ministry by radio that it would be too much to say that "all of us saw a flying saucer, one of these science-fiction things."

"However," he continued, "it was something real, an object that moved at amazing speed, maneuvered quickly and gave off a blue-green sheen. It also caused interference in the electromagnetic apparatus of an Angentine base which is facing ours on a nearby small island."

The interference was confirmed by the Navy communiqué issued in Buenos Aires.

The Chilean commander said a corporal had taken color pictures. But there are no facilities there for developing the film.

Russians Catch Albino Whale

MOSCOW (UPI) — Soviet fishermen caught a 39-foot white sperm whale recently. The whale, caught in the North Pacific, was said to be the first albino sperm whale harpooned since a Japanese ship landed a smaller one eight years ago.

Finding The Age Of McMurdo Volcanoes

(Special Correspondent N.Z.P.A.)

SCOTT BASE, November 26.

A clue to the age of Antarctica's McMurdo volcano area may be found this summer. It is thought that the eruptions happened during the Pleistocene age, one to five million years ago, or possibly earlier.

Today a New Zealand research four-man field party left Scott base for the Aviator glacier, in the volcanic area, 250 miles to the north. The party was airlifted, and using motor toboggans will cover about 2500 square miles before returning to base early next year.

Leading the party is Mr D. Lowe, of Auckland. His field assistant is Mr R. Bates, of Wellington.

The geologists are Mr R. Adamson, of Taipa, and Mr R. Cavaney, of Dunedin.

"Earlier geological investigations suggest lava has flowed across the Aviator glacier and settled on top of the Navigator Nunatak, a mountain peak above the snow line," said Mr Adamson.

"If lava deposits are found on top of this Nunatak, a line of stakes will be surveyed across the glacier, and then resurveyed, probably next summer, to determine the movement rate of the glacier.

Later an attempt would be made to find part of the lava flow that must have sunk into and then drifted with the glacier. From the movement rate, the time of the eruption could then be computed.

At the head of Campbell Glacier, 60 miles to the south, the party will study the geology of a divide between the Campbell and Priestly glaciers. Over this area of 500 square miles granite has intruded into older rock.

The geologists will try to trace the relationship of the rock types which link nearby areas previously surveyed.

ANTARCTIC SURVEY

Solution To Controversy

(N.Z. Press Association)

SCOTT BASE, December 9.

A controversy beginning with the discovery of the Beardmore glacier in Antarctica by Shackleton, and continued through Scott's ill-fated expedition, should end this summer.

A four-man geological team from New Zealand, led by Mr Alan Bibby, of Wellington, is hoping to determine the direction of much earlier glacial movements — believed to have happened about 400 million years ago.

Rock samples collected from the tillite (glacial moraine), can be traced back to their source, according to Mr D. Young, one of the geological surveyors with the party.

Tillite occurs at the base of beacon-type sediments in many southern hemisphere countries and is about the same age everywhere.

The tillite and the consequences of the rock above were used by some people to suggest that Antarctica, Australia, India and South America were once joined as an enormous land mass, Mr Young said.

Bomb Call Delays Plane

AUCKLAND, New Zealand, Oct. 10 (AP).—A telephone call saying a bomb was aboard a U. S. Hercules plane bound for the Antarctic caused the plane to turn back Sunday night, 10 minutes after leaving Christchurch. Firemen stood ready when it landed after jettisoning fuel and police cordoned the area but a search of the plane revealed nothing.

Whale of a tale

VLADIVOSTOK (AP) — The Soviet news agency Tass reports that a large sperm whale harpooned by the whaling ship Tsikon whipped around and butted the vessel with such force the engines conked out. It said the engines couldn't be repaired and the ship returned to Vladivostok at the end of a towline.

Madison E. Pryor

Biological Research at Mirnyy Observatory, Antarctica

BioScience April 1965

During the International Geophysical Year, scientific personnel were exchanged between the United States and Soviet Antarctic Expeditions. This exchange program was continued after the close of the International Geophysical Year, and the principle of scientific exchange was formally recognized in the Antarctic Treaty, signed on December 1, 1959.

Since 1957, five Americans have completed research programs in both the physical and biological sciences at Mirnyy Observatory. Exchange personnel working with the Soviet expeditions in 1957 and 1958 were representatives of the U.S. Weather Bureau; those who completed projects in 1960, 1961, and 1962 were supported by grants from the National Science Foundation's United States Antarctic Research Program (USARP). Data presented in this report are concerned only with the biological aspects of research in the Mirnyy Observatory area, and conclusions are based on the results of both early and more recent observations. The purposes of this report are (1) to summarize current information concerning the area and its faunal resources, (2) to review the results of previous biological research, and (3) to discuss the prospects for future biological programs. This information is intended to show the research potential of the area and to point out some of the problems encountered in the process of completing field studies.

The Soviet coastal research facility, Mirnyy Observatory (66°33′ S, 93°00′ E), was built in 1956. The observatory is located on Mabus Point, a promontory of granitic and gneissic rock and moraine bounded by active glaciers. A level area of exposed basement rock and moraine, 30 meters above sea level and approximately 300 meters from the shoreline, was selected for the construction of living and working quarters. The observatory area is bounded on the east by large crevasses, and a small number of ice-free areas border the coast line west of the observatory. General activity in the immediate area is quite restricted because crevasses are found only a few kilometers east, south, and west of the observatory. The ice cliffs which form the northern boundary of the observatory area vary in height from 10 to 30 meters, and water at the base of these cliffs varies in depth to as much as 50 meters.

Lichens and algae are found in exposed areas near the observatory; however, unavoidable contamination of these areas has occurred as a result of construction, fuel storage, and the disposal of waste products associated with the production of hydrogen used in the meteorological program. Ice-free areas along the coastline are relatively uncontaminated, but here the presence of crevasses makes biological research almost impossible. Except for infrequent visits by scavenging South Polar skuas (*Catharacta maccormicki* [Saunders]), areas near the observatory are essentially devoid of animal life. In direct contrast to conditions prevailing on the mainland, certain forms of animal life are abundant on the Haswell Islets which are located only a few kilometers from the observatory. The accessibility of the islets and their abundant fauna present conditions which are almost ideal for research associated with some species. The English equivalents of Soviet names for islets include both those names which have been approved by the United States Board on Geographic Names and those which are restricted to local use.

The group of islets was discovered in November, 1912, by members of Mawson's Australasian Antarctic Expedition. During an overland journey from the western edge of the Shackleton Ice Shelf to Gaussberg, the Western Coastal party detoured from the heavily-crevassed mainland and spent 5 days exploring, collecting, and making general observations on Haswell Islet. Excellent descriptions of local topography and lucid accounts of biological discoveries and observations made by the discovering party were published by Mawson in 1915. Information presented in his *Home of the Blizzard* stimulated interest in a number of scientific problems applicable to the area, and especially showed the biological potential of Haswell Islet. Biological data collected during 1912 were also analyzed, reviewed, and published by Falla in 1937.

Continuing biological investigations in the area were initiated only after the establishment of Mirnyy Observatory. In 1958, Korotkevich published the results of observations made on birds and seals during the first wintering of the Soviet Antarctic Expedition. Since that time, Korotkevich, Makushok, and others have continued to publish analyses of biological observations made on succeeding expeditions. The first observations made by Soviet researchers wintering at Mirnyy were primarily concerned with the enumeration of species, sizes of populations, and the chronological sequence of breeding activities characteristic of certain species. Recent observations have included more specialized studies made in the Emperor penguin (*Aptenodytes forsteri* Gray) colony near Haswell Islet. Summer programs conducted by research workers on expedition ships have included studies of marine biology, terrestrial flora, "soils," and a number of more specialized biological problems. The practice of providing space for biologists on flights primarily intended for ice reconnaissance has given Soviet researchers opportunities to make general observations in many areas adjacent to Mirnyy Observatory. Such use of available facilities has made possible the discovery and accurate location of new Emperor penguin colonies and has allowed researchers the opportunity to make observations and collections in some areas which would not have been otherwise surveyed. Soviet observers have cooperated in the exchange of data and have taken part in international projects such as the South Polar skua banding program initiated by Eklund in 1956.

Eight species of birds occupy a variety of areas in the immediate vicinity of Mirnyy Observatory. Seven species are summer residents on Haswell Islet, and the Emperor penguin occupies a winter breeding area east of the islet. Members of some species also breed on five smaller islets in the Haswell group. The opportunity to study so many spe-

cies in such a compact area is rare in the higher latitudes, and the accessibility of this large avifauna encourages specialized ornithological research here.

Islets in the area do not support a rich "soil" fauna. The "soil" fauna is composed of protozoans, rotifers, nematodes, tardigrades, and at least one species of free-living mites. Terrestrial habitats capable of supporting the development of a rich fauna are few in number and found only on some of the larger islets. Observations made in 1962 showed that free-living terrestrial arthropods were not abundant in the area, and those found were confined to restrictive environments where a permanent or semi-permanent supply of moisture was available. The paucity of organisms and habitats makes it difficult to design or complete even simplified programs associated with "soil" arthropods. With the exception of the two species of penguins which breed in the area, ectoparasites (Mallophaga) were collected from other species which occupy nest sites in the area. Some birds supported larger parasitic populations than others, but most specimens examined showed some degree of infestation. Feather mites were collected in great numbers from some of the South Polar skuas examined.

Lichens are the most abundant plants in the area. Mosses and algae are also found in restricted localities on the larger islets. The obvious flora of some smaller islets in the group are lichens and algae. Most of the fresh-water basins on Haswell Islet receive drainage from areas occupied by Adélie penguins (*Pygoscelis adeliae* [Hombron and Jacquinot]); however, two or three fresh-water ponds at higher elevations are relatively uncontaminated. A small, but continuous, cover of mosses and algae is found in areas adjacent to most fresh-water basins. Some mosses and algae which are found at higher elevations have very short growing seasons. During the period of maximum thawing, these moss patches and algal covers are frequently inundated by meltwater which cascades downslope. However, after winter snow accumulations have melted, the plants are subjected to extreme desiccation. In isolated areas, the growing season for some mosses and algae may be no longer than 2 or 3 weeks.

Facilities for biological research in the immediate area of Mirnyy Observatory

FIG. 1. General view of station—Mirnyy living quarters. (*NSF Photo*)

FIG. 2. General view of Mirnyy radar locator, foreground. (*NSF Photo*)

FIG. 3. Building #15, Mirnyy station living quarters. (*NSF Photo*)

are good. Although the observatory does not support a laboratory especially designed for biological research, space is made available to any person who may require it for specialized and space-consuming projects. Certainly, the amount of space available is limited by the size of the expedition; however, every effort is made to provide sufficient facilities for all types of research. In the early stages of the 1962 research program, I occupied a living-working area of approximately 150 ft². When the room became crowded with collections and equipment, it was converted into a laboratory, and sleeping quarters were provided in another building. At no time during the year did insufficient space interfere with the completion of biological research.

General field equipment, tents, radios, rations, and excellent transportation facilities are available at the observatory. Although most biological projects can normally be maintained by one person, there are occasions when assistance and companionship are necessary. This is especially true when work areas are separated by large expanses of sea-ice. It has been my experience that any member of the expedition will offer assistance when it is necessary.

The variety of species, sizes of populations, and easy access to breeding areas provide excellent opportunities for specialized or general ornithological observations. From early October to late April, Haswell Islet is inhabited by some of the species which occupy various nesting sites on the islet. The Emperor penguin arrives in late March and remains in the area until late January of the following year. At least one species of birds is in the area at all times during the year. In late March the sea-ice is not stable enough to permit safe movement to areas occupied by the Emperor penguins; however, general observations of arrival dates and rates, mass movements, colony formation, and major activities of the species can be made from the shore. The colony can be visited as frequently as necessary after mid-April, and data concerned with many important phases of the breeding cycle can be obtained during the remainder of the year. After mid-January, the deterioration of the sea-ice between the observatory and the offshore islets makes it unsafe to travel in that area; consequently, most previous observations made on Haswell Islet have been terminated before the completion of breeding cycles. The construction of a semi-permanent living-working facility on Haswell Islet would make it possible to maintain observations through the latter stages of breeding cycles for all species inhabiting the islet. If necessary, safe travel from the observatory to the islet could be made by boat when the area is free of ice. The north-south position of smaller islets between the mainland and Haswell Islet would greatly increase the safety of boat travel. Any program dependent upon the collection of data during all stages of the breeding cycles must provide for facilities that permit residence on, or efficient travel to, Haswell Islet during the months of January, February, March, and April.

In addition to ornithological research, general or specialized programs associated with marine biology or terrestrial flora could be successfully completed at Mirnyy Observatory. The depth of water between the islets varies from approximately 25 to 160 meters, and programs concerned with the vertical distribution of organisms from bottom to surface zones could be maintained during all seasons. Research associated with terrestrial flora would be more restricted, and success would be dependent upon the ambitiousness of the program. Mosses and algae are not abundant on any of the islets; consequently, projects requiring the presence of large floral deposits with relatively long growing seasons would be impossible to maintain. The number of Weddell seals (*Leptonychotes weddelli* Lesson) in the area appears to be quite variable with respect to both different years and seasons in a particular year; however, some generalized studies of this species could be made. Conditions prevailing on the larger islets present numerous opportunities for specialized research associated with the microflora and fauna. When all factors are considered, ornithological research would be the most rewarding with respect to the ease of obtaining abundant and accurate data and the probability of completing particular programs.

The investigator can depend upon the observatory to provide general facilities necessary to the research program, but specialized recording instruments, particular pieces of field equipment, collecting and preserving media, and parts and implements necessary to assure the proper functioning of all instruments should be provided by the designer of the program. Any electrically operated equipment must be adapted for the use of a 200 V, 50 cycle electrical supply. Battery-powered equipment for use in the field should be thoroughly checked before it leaves the United States, and necessary power sources should be supplied in great quantity. This self-sufficiency is recommended for the successful completion of programs at any station; it is essential for researchers working at foreign stations.

Those planning programs for completion in areas where investigations have not been made in a specific field must allow for some flexibility in plans of research, for alterations in plans, changes in techniques, and even the employment of a secondary research project are often necessary to assure the success of a research season. If abundant data are available from previous investigations made in the area, the investigator can design a program capable of being successfully carried to completion; however, if the area has not been adequately surveyed, the initial phase of research should be one of evaluation to determine the future course of research. If the biological potential of the area has been sufficient to stimulate a desire for research, the investigator can be assured that even the more specific aspects of his project will be completed with some degree of success.

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LEAD POLLUTION OF AIR 'ALARMING'

Analyses of Greenland's Ice Cap Also Show Increase Over the Last Decade

By WALTER SULLIVAN

The New York Times

Sept. 8

Worldwide contamination of the environment by lead from motor gasoline was reported yesterday to have reached "alarming" proportions.

The level of the poisonous metal in the blood of the average American was said to have risen to almost half that which produces obvious symptoms of poisoning.

These include disruption of the central nervous system, such as convulsions. Fear has been expressed, however, that lower doses might produce more subtle effects, such as impairment of thought processes. The pollution of the environment, it was said, could have "historic" consequences.

This was stated in a telephone interview by Dr. Clair C. Patterson, research associate in geochemistry at the California Institute of Technology. He had been quoted by the National Science Foundation as saying that his excavations of ice from various levels in the Greenland ice sheet "have indicated an alarming increase in lead concentration in the last decade."

He attributed this to deposition, on the ice sheet, of snow carrying lead that originated from the burning of leaded gasoline. To test whether or not this effect carries to the ends of the earth—namely to the South Pole region—he is to mine snow and ice from a shaft at Byrd Station in Antarctica, collecting samples from the last 60 years of snowfall.

His project was described by the National Science Foundation in outlining its 1965-66 program in Antarctica. The program also calls for building an eight-man station in the coldest, grimmest, most remote of all regions—the 13,000-foot plateau in the center of the continent, where temperatures probably drop to 130 degrees below zero Fahrenheit.

If the amount of lead in polar snow has risen sharply in recent years, so has the level in drinking water and food.

Normally, Dr. Patterson said yesterday, the level of lead in human blood is about 0.002 parts in a million. However, in the average American it is now 0.25. Acute symptoms appear at from 0.5 to 0.8. In cities such as New York, he added, the exposure is probably well above the national average.

The first Greenland studies were carried out in 1964 in a shaft penetrating the ice sheet at Camp Century, an Army research station. Samples were obtained of snow that fell in 1964, 1954, 1944 and so on, back to the turn of the century.

To seek out subtle quantities of lead it was necessary to collect four 30-gallon drums of snow or ice for each sample. The lead content remained quite uniform until 1954, when it began to rise. The 1964 sample proved to be about 40 times as contaminated with lead as the others.

One possibility is that this was a local effect, caused by vehicles servicing Camp Century. Hence this summer a party traveled 50 miles upwind from the camp, to an area where no vehicles are known to have operated.

There a 20-year series of samples was obtained. Other new samples include one dating back to 1750 and one about 4,000 years old from the edge of the ice sheet at Camp Tuto, near Thule, Greenland. It will be several months before the samples have been analyzed.

The ice of the polar regions is an ideal index of worldwide contamination since analysis of each annual layer gives the average for that year. Day-to-day samplings of air or precipitation in industrialized parts of the world are subject to the vagaries of wind direction and other weather factors.

Presumably the lead in the air derives from ocean salts, volcanoes, metal smelters, automobile exhaust, the burning of leaded paints and other sources. However Dr. Patterson believes vehicle exhaust is the chief source. His report on this study is to be published shortly in The Archives of Environmental Health.

The site is some 600 miles from the American base at the South Pole. It lies about 100 miles toward the Atlantic Ocean from the so-called Pole of Inaccessibility where Soviet scientists carried out observations in 1958.

During the coming Antarctic summer, which coincides with the northern winter, a ten-man party, riding three tracked vehicles, is to journey from the Pole of Inaccessibility to the new Plateau Station.

Last year a similar journey was made from the South Pole to the Pole of Inaccessibility. The South Pole is the southernmost place on earth, whereas the Pole of Inaccessibility is the point most remote from the sea.

All told some 200 American scientists will undertake about 30 field projects in Antarctica during the coming months, largely supported by grants from the National Science Foundation. As in former years, the operations will be supported by the Navy.

Adm. Edwin J. Roland

ATOM ICEBREAKER FOR U.S. STUDIED

Coast Guard Considering Adding One to Fleet

The Coast Guard may build the nation's first nuclear-powered icebreaker, Adm. Edwin J. Roland, Coast Guard Commandant, said here Nov. 6

Admiral Roland, in a speech at an American Legion dinner, said the Coast Guard was planning a new icebreaker. But it has not been decided whether to use nuclear or conventional power, he said.

The addition of a nuclear-powered icebreaker, he said, would greatly increase the polar research capacity of the Coast Guard fleet.

Admiral Roland spoke at the Waldorf-Astoria Hotel before more than 1,000 guests attending the annual Robert L. Hague post dinner, at which he received the American Legion's distinguished service medal.

The Coast Guard's fleet of conventionally powered icebreakers, he added, is being augmented by the transfer of five Navy icebreakers to the Coast Guard, giving it a total of nine.

The first of these Navy vessels, the icebreaker Edisto, was transferred to the Coast Guard late last month. The entire transfer is expected to take 13 months, Admiral Roland said. It is being undertaken after recent studies of dual Navy-Coast Guard operations of icebreakers, which have shown that exclusive Coast Guard operation and manning of icebreakers "would be most consonant with the national interests," Admiral Roland said.

After completion of the transfer the Coast Guard icebreaker fleet will perform seasonal duties in both the Arctic and Antarctic and peacetime operations in polar regions. It will also continue the traditional icebreaking service for commercial shipping and participation in polar scientific programs.

The Soviet Union has operated the 25,000-ton nuclear-powered icebreaker Lenin since 1959. The Lenin, a 440-foot triple-screw vessel uses nuclear energy to raise steam for the vessel's turbo-electric propulsion machinery rated at 44,000 horsepower.

Existing United States ocean-going icebreakers are 269-foot diesel-powered craft, rated at 13,300 horsepower.

The construction of a large nuclear-powered United States vessel was proposed several years ago by Representative Herbert C. Bonner, North Carolina Democrat and chairman of the House Merchant Marine and Fisheries Committee. The proposal was not acted upon.

14 NATIONS AGREE ON WHALING CURBS

LONDON, July 7 (AP) — Fourteen nations have agreed to try to curb the slaughter of whales, the International Whaling Commission said today.

In a statement issued after a conference here, the commission said that measures had been drawn up to reduce quotas of the catch and to protect some areas.

It said delegates were told that hunters must make immediate sacrifices if whaling was to survive and give an economic return. Statistics in the statement showed that in some places the catch was exceeding the number of whales being reproduced.

Whale stocks in the North Pacific are badly threatened. Against a catch of 3,991 fin whales in 1964 there was an estimated sustainable yield of only 1,600, the figures showed. The commission decided that the four North Pacific countries—the United States, the Soviet Union, Japan and Canada—should meet as soon as possible to work out conservation measures.

In the 1964-65 season in the Antarctic, 20 blue whales, 7,308 fin whales and 19,874 Sei whales were caught, totaling 6,986 "blue whale units," the statement said. One blue whale equals two fin or six Sei whales.

The commission decided to reduce the Antarctic quota of blue whale units to 4,500 for next season.

The countries that took part in the talks were the United States, the Soviet Union, Britain, Argentina, Australia, Denmark, France, Ireland, Japan, Mexico, the Netherlands, New Zealand, Norway and South Africa. Observers also came from Chile, Italy, Portugal and Peru.

Scientists Leave for the Soviet Arctic

The New York Times

COPENHAGEN, Denmark, July 15 — The United States Coast Guard icebreaker Northwind left Denmark today on a three-month scientific voyage that will take her into the Soviet Arctic. Northwind's basic mission is to provide "a floating platform" for civilian scientists aboard to conduct oceanographic and meteorological studies in the Barents and Kara Sea areas, for which scientific data is virtually nonexistent in the United States.

The Northwind will cruise up the coast of Norway and then set course for the Russian territory of Novaya Zemlya, or New Land. Novaya Zemlya consists of two narrow islands stretching roughly 500 miles from the Siberian mainland toward the North Pole.

In years past, the seas north of Novaya Zemlya have been iced as late as mid-August, but United States Navy ice reconnaissance fliers brought back reports this week that the waters were comparatively free of ice. What ice does exist is not considered an insurmountable obstacle for the heavily reinforced bow of the 6,000-ton icebreaker.

United States and other Western scientists are especially interested in basic oceanographic data concerning the Barents and Kara Seas because of the paucity of information made public by Soviet officials. The Russians seem more willing to share information about the distant Antarctic than they are about the Arctic.

"We've gotten some information from the Russians, but it hasn't been much. We'd like to supplement it," said Don Milligan, a civilian scientist of the United States Naval Oceanographic Office who is the chief of the 14-man scientific party aboard the Northwind.

The scientists hope to take more than 200 oceanographic stations, recording the salinity, temperature and dissolved oxygen of water samples taken at various depths at each location.

In addition, Northwind scientists will conduct phankton studies in cooperation with the Lamont Geological Observatory in Palisades, N. Y.; bottom-core studies in cooperation with the Woods Hole (Mass.) Oceanographic Institute and air-radiation studies in cooperation with the Health and Safety Laboratory of the Atomic Energy Commission.

There is also a four-man party from the University of Wisconsin aboard the icebreaker primarily interested in seismic gravity and magnetic studies of the ocean floor.

The Northwind has been at sea since leaving her home port of Seattle early last month.

The New York Times July 16, 1965

Dashes show route Coast Guard icebreaker Northwind will take on 3-month voyage with civilian scientists aboard.

U.S. VESSEL MAPS THE SOVIET ARCTIC

Damaged Icebreaker Goes to England for Repairs

The New York Times

NEWCASTLE-UPON-TYNE, England, Aug. 18—For the first time in the history of polar exploration, an American vessel has successfully penetrated and traversed the Kara Sea in the Soviet Arctic to gather basic oceanographic information.

Besides studying the currents and physical properties of that ocean, the Americans charted the earth's magnetic and gravitational fields in the area.

The surveying was done by the Coast Guard icebreaker Northwind, which arrived here today for emergency repairs to her starboard shaft. She had been operating in the Kara and Barents Seas since July.

The icebreaker was under almost constant surveillance by Russian aircraft and naval vessels and had to contend with extremely heavy ice floes to accomplish her scientific mission. For several days a Russian destroyer maintained a position a few hundred yards off the Northwind's starboard quarter, and Russian twin-jet Badger bombers made repeated mast-top passes daily.

But the Russians did nothing to hamper the scientific work, and the signals passed by flag and blinker light between the American icebreaker and Soviet vessels were notable for their cordiality.

The Northwind had been scheduled to spend three months in the Arctic gathering data not only in the Kara Sea but also in the upper reaches of the Barents Sea near Spitsbergen and Franz Josef Land. Shortly after entering the Kara Sea ice pack, however, she suffered damage to her starboard propeller shaft.

Major repairs were required before the icebreaker could hope to battle the even heavier ice expected farther north.

The ship, under the command of Capt. Kingdrel K. Ayers, will go into drydock at the Swan Hunter and Wigham Richardson, Ltd., shipyard in Wallsend outside Newcastle. When ready for sea again, she will head back to the Barents Sea to complete as much of the scientific program as possible before new winter ice begins forming.

Even if no further studies are possible, the data brought back from the Kara Sea constitute a major addition to the West's information about the Soviet Arctic and are expected to prove of great help in scientific understanding of the North Polar region.

The Northwind's scientific program was conducted by teams from the United States Naval Oceanographic Office and the Geophysical and Polar Research Center of the University of Wisconsin.

In all, 57 oceanographic stations were taken in the Kara Sea between the Russian territory of Novaya Zemlya and the mainland of Siberia. The temperature and salinity of 625 water samples were recorded and analyzed. Both are key indicators in charting ocean currents.

A continuous profile was drawn of the Kara Sea's bottom, with special emphasis given to the Novaya Zemlya Trench. Sixteen bottom cores were taken in areas where permitted by international treaty. Plankton samples were collected at 17 locations, and 24 water samples were obtained in areas flanking Novaya Zemlya.

These samples will be examined for radioactive contamination. Continuous readings were also made of the radioactivity of the air. These readings are considered of prime scientific interest because Novaya Zemlya was the site of many Soviet nuclear tests.

Finally, 49 upper air weather readings were obtained and gravity and magnetic data were gathered.

The data are especially significant because they come from an area never before visited by a modern Western scientific expedition. Only the Russians have good data about the Kara Sea, and they have been slow in publishing it.

The cruise of the Northwind is part of a large United States effort to fill in the blank spaces on Western oceanographic and geological charts of the Arctic Ocean.

As of this summer, only the Kara Sea and portions of the Barents Sea remained unstudied. Now the Kara Sea has been covered, leaving only the northern and eastern portions of the Barents Sea to go.

ABOARD THE ICEBREAKER NORTHWIND, at Sea, Sept. 4—This United States Coast Guard vessel sailed today from Newcastle-Upon-Tyne, England, to resume an oceanographic survey of the waters of the Soviet Arctic.

All scientific work will end by Sept. 30 about the time winter ice begins forming in the upper reaches of the Barents Sea.

Crew Basks in Sun As U.S. Icebreaker Heads Into Arctic

The New York Times

ABOARD U. S. ICEBREAKER NORTHWIND, in the Artic, July 18—The way military men keep time, it was exactly 0737 Greenwich mean time today when this Coast Guard vessel crossed the Arctic Circle off the Norwegian coast.

From appearances on deck, no one would expect that within a few days this vessel would be battling ice packs while conducting oceanographic experiments in hazardous waters of the Kara Sea off Soviet Siberia.

Members of the crew and of the civilian scientific parties lounge about in shirt sleeves, reading or taking the sun much as they would if they were on a Caribbean cruise. Temperatures are in the low 60s, well above normal for this area at this time of year.

It was so warm that Boreas Rex, the king of the Arctic, put off his customary initation today for those "bluenoses" aboard who have not previously crossed the Arctic Circle. He will wait until the ship arrives in colder climates.

SOVIET ARCTIC TRIP CALLED A SUCCESS

U.S. Icebreaker Due Here After Scientific Study

The following dispatch was written for The New York Times by Richard Petrow, a freelance writer, who was a passenger aboard the Coast Guard vessel Northwind

Oct. 17

The Coast Guard icebreaker Northwind will arrive in New York this week after having carried out the first United States oceanographic survey of the Kara Sea and the northern portion of the Barents Sea in the Soviet Arctic. The icebreaker penetrated to within 500 miles of the geographic North Pole before hitting a polar ice pack.

While Northwind set several significant scientific firsts on her cruise, she failed to complete another major mission, that of making the first United States transit of the Northeast Passage across the top of the Soviet Union, from the Atlantic Ocean to the Pacific.

Throughout her operations in northern waters, the icebreaker was subjected to overflights by Russian twinjet Badger bombers and close surveillance by units of the Soviet Arctic fleet. On one occasion, with the United States vessel in international waters off the Norwegian coast, a Russian destroyer ran up a signal flag challenging Northwind to "stop instantly."

The challenge was ignored and was not repeated.

However, Soviet displeasure over Northwind's presence in her polar waters resulted in the calling off of the attempt to traverse the Siberian coast.

Only three non-Russian ships have ever sailed through the Northeast Passage. None was American.

The Soviet Union claims a 12-mile territorial limit and considers all the East-West straits of the Passage as territorial waters. The United States officially doesn't recognize the Soviet 12-mile limit and maintains that the waters of the polar seas north of Siberia are international waters open to ships of all nations.

This was not the year for a test. On Sept. 18, with a Russian destroyer in close attendance and Russian bombers blinking warning lights across her bow, Northwind came to within 30 miles of Boris Vilkitskogo Strait, the key strait of the Northeast Passage, and then turned away.

Nevertheless, the Northwind was the first United States scientific vessel to study all of the Kara Sea, the first to investigate the currents near Vilkitskogo Strait and the first to round the northernmost point of Severnaya Zemlya.

The oceanographic work was conducted by a United States Naval Oceanographic Office research team headed by Don Milligan. A total of 163 stations was taken and 1,814 water samples were analyzed. The temperature and salinity data obtained will provide clues to the major currents in the area. In addition, 101 bottom cores were collected in depths of more than 200 meters, 31 plankton and dwarf plankton samples were collected, a continuous record of the air radiation was kept and 35 water samples of 30 gallons each were obtained near the islands of Novaya Zemlya, site of past Russian atomic tests. These will be examined for radioactive contamination.

When in position near the mouth of Vilkitskogo Strait, Northwind scientists conducted a 24-hour study of subsurface currents. Surprisingly, the current indicators showed the water flowing from east to west. All available oceanographic charts on the ship had indicated the reverse, showing currents flowing from west to east.

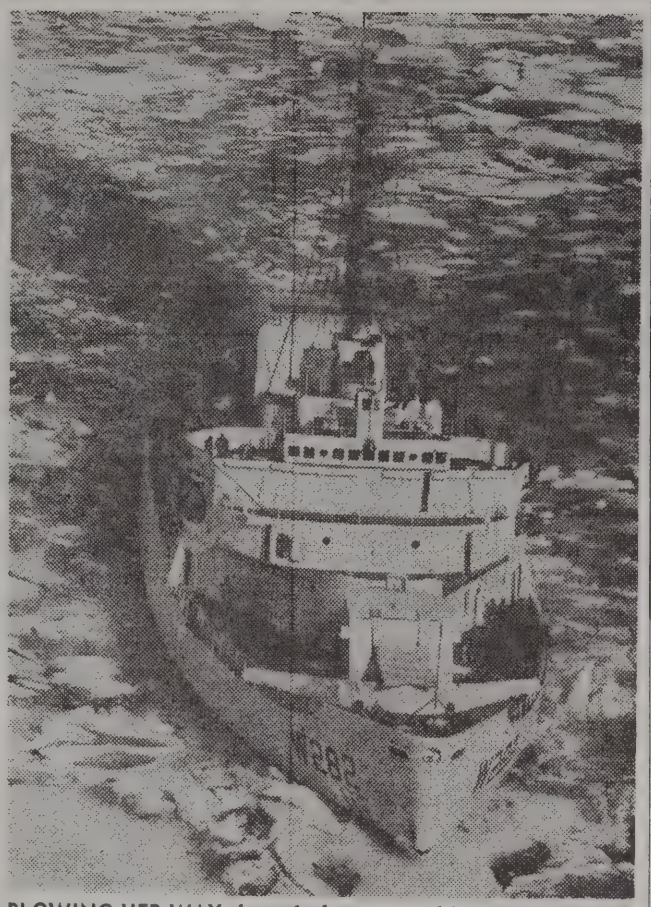
A 12,000-mile bathymetric profile of the ocean bottom was drawn by Henry Ensminger, a marine geologist with the United States Naval Oceanographic Office. His data indicates that the southern portion of the Kara Sea, which has depths as great as 1,770 feet, was once dry land, probably at the same time the Bering Strait was a bridge between the continents of Asia and North America.

Still another part of Northwind's scientific program was an examination of the earth's magnetic and gravitational fields by Dr. Ned Ostenso of the Geophysical and Polar Research Center of the University of Wisconsin. The magnetic data obtained will go toward the international effort, strongly backed by the United States, to chart the magnetic field of the earth.

It will also provide clues to the underlying geological structure of the area traversed. For instance, there appears to be a submerged trans-Kara Sea connection between the mountain foldbelts of Novaya Zemlya and the northern Taimyr Peninsula.

Like magnetics, the earth's gravitational field is also influenced by underlying geology. In this respect, the gravity data obtained over the East Novaya Zemlya trench indicate this feature was not formed by deep structural forces within the earth but by glacial scouring of the continental ice cap of the past ice age.

In general, the Kara Sea bottom showed rather few magnetic disturbances, or anomalies. From a natural resources point of view, therefore, metallic ores would not be expected in such areas. Militarily, such regions would provide good conditions for detecting submarines by magnetic devices. Conversely, they would pose serious problem in magnetic camouflage for any intruding submarine.



PLOWING HER WAY through the scattered ice of the Kara Sea in the eastern Arctic is the Coast Guard cutter Northwind which has completed an oceanographic survey of the area near the Russian land mass. Her five-inch guns on the bow were covered to emphasize the peaceful nature of her work.

Icebreaker Is Here After Arctic Trip

For several weeks in August and September the Coast Guard icebreaker Northwind, which returned here Oct. 23 from an oceanographic mission, was under almost constant surveillance by Soviet aircraft and surface ships.

The Northwind, which during those weeks also had to contend with extremely heavy ice floes, was looked over almost daily by Russian destroyers, fishing trawlers and jet aircraft.

On occasion, the Coast Guard vessel repaid the attentions showered on her by the Russians in the polar waters of the Kara and Barents Seas, north of the Soviet Union, by sending a helicopter to keep an eye on a trawler that was following her.

According to Capt. Kingdrel N. Ayers, master of the 269-foot Northwind, the icebreaker became the first American vessel in the history of polar exploration to penetrate and traverse the Kara Sea in the Arctic Ocean.

It was in this area that, in August, the vessel suffered damage to her starboard propeller shaft, which required emergency repairs in a British shipyard. The Northwind returned to the Arctic and continued her oceanographic work in the Barents Sea.

The icebreaker studied the currents and physical properties of the Arctic Ocean and also charted the earth's magnetic and gravitational fields.

On her trip here the Northwind was called upon to escort for more than 12 hours the 360-foot Swedish freighter Orion, which asked for assistance last week after she developed three cracks in her deck.

Pole-to-Pole Jet Sets Host of New Records

By WALLACE MITCHELL
Honolulu Advertiser
HONOLULU, Nov. 18.

A pole-to-pole, globe-circling Flying Tiger jet 707 touched down at Honolulu International Airport yesterday with a host of new flight records and an elated crew.

Since leaving the same runway at 7:44 p.m. Sunday, the "Tiger Polecat" had streaked across the North Pole to London, refueled at Lisbon and Buenos Aires, circled the South Pole and returned to Honolulu with a single fueling stop at Christchurch, N.Z.

The National Aeronautics Assn. timer aboard the plane showed an unofficial flying time of 51 hours and 29 minutes and a total time —including hours on the ground — of 62 hours, 27 minutes and 35 seconds.

The goal had been 52 hours total time.

"We'd have liked to have been on time," said TWA Capt. Robert Buck, Pipersville, Pa., one of the five 707 pilots aboard, "but the delay at London hurt us."

When the plane landed at London from Honolulu, the crew found that the only runway capable of handling the fully-refueled 707 for takeoff was out of commission. A less-than-capacity fuel load was taken on and an extra fueling stop was made at Lisbon, Portugal.

An old-and-new combination aboard evaluated the trip with enthusiasm.

They were Bernt Balchen, 66, a white-haired veteran aviator who in 1929 became the first pilot to fly over the South Pole, and Capt. Jack L. Martin, chief pilot of the Flying Tiger Line.

Martin, a beefy, Oklahoma City, Okla., native, ticked off some of the records he believed the flight had established:

"We were the first ones to go around the globe from north to south. We were the first to cross both poles.

"We set an elapsed time record for the flight and a record time to London via the North Pole.

"The delay at London cost us a London-to-Buenos Aires record because we couldn't take on a full load of fuel, but I think our Buenos Aires to Christchurch hop set a record.

"But the important thing was that we had 707 pilots from TWA, Tiger and Boeing Aircraft and the plane was so well stabilized that we had no trouble working as a team.

"This is a remarkably trouble-free airplane.

"And remember — it will be in service tomorrow for MATS, to fly to the Far East."

The flight left for Burbank, Calif., at 1:22 p.m., three hours after landing.

Martin was the aircraft commander and was in the cockpit for most takeoffs and landings although Capt. Fred L. Austin, who with fellow TWA Capt. Harrison Finch originated the precedent-shattering flight, landed the "Tigers Pole-Cat" here yesterday.

For Balchen, it was his 26th flight over the North Pole in everything from the first Ford Tri-Motor 40 years ago to modern B-52 bombers. It was his first flight over the South Pole since he piloted the late Adm. Richard E. Byrd over it in 1929.

"The flight was of high significance in evaluation of the progress and capabilities of modern transportation," Balchen said.

"It proved the statement I've often made—that our modern aircraft with its ranges, navigation, electronic and communications equipment and the high proficiency of pilots, can go anywhere, any time, with just as high a degree of safety and regularity as anything flying today.

"In my opinion, the flight has been a test of where we stand today in the development of aircraft—and where we are going tomorrow.

"It has established an interim performance platform for the whole transport industry."

Balchen recalled that on his 1929 flight, he flew over the South Pole at 2,000 feet. The "Tigers Pole-Cat" was at 37,000 feet.

"The visibility was perfect," reported W. F. Rockwell, 77-year-old, chairman of the board of Rockwell-Standard Corp., manufacturers of aircraft instruments that financed the flight.

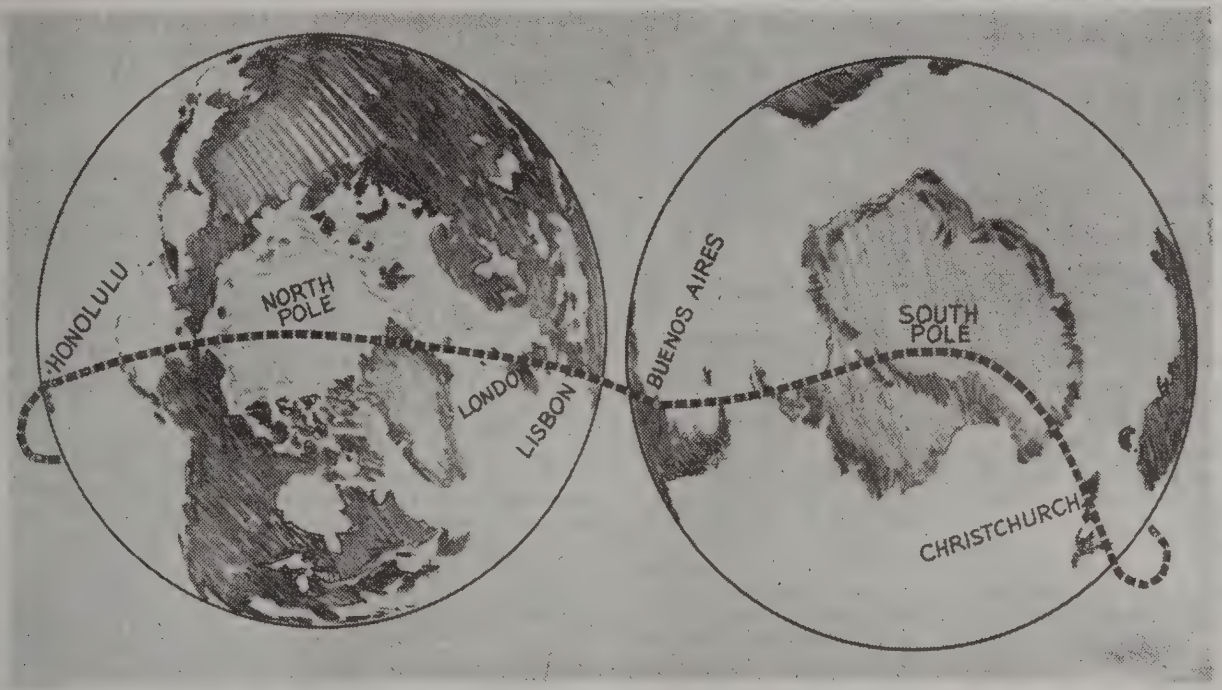
"We had a half-million dollars worth of instruments aboard to test everything. The equipment even included a mechanical stomach for a test of the effect of neutrons on the body system.

"But," he confessed, "we had trouble getting bearings at the South Pole because the station looked like a smoke-bomb.

"So we asked the station why someone didn't run out and wave to us and they did."

In addition to the five qualified 707 pilots, the crew

Balchen, polar flight veteran of yesteryear, congratulates pilot Martin.



The route of "Polecat" from Honolulu over the North and South Poles and back to Honolulu.

included three 707 engineers and two navigators and 29 scientists and observers.

Robert Prescott, president of Flying Tiger Lines, left the hop at London, where he was informed of the death of his 11-year-old son Sunday in a private plane crash on a flight from Palm Springs to Burbank, Calif.

The normal flying span of the plane was stretched by the installation of a dozen, 4,000-gallon, rubber tanks in the mid-section usually filled with seats. The tanks were used for catnaps by crew and passengers after the fuel was spent.

The interior also was crowded with motion picture and still cameras, scientific instruments, teletypewriters and electronic gear. Seating was in the fore and aft sections of the plane, two- and three-abreast.

There were no particular ceremonies when the plane crossed either of the poles, the crew said.

"We talked to the boys on the ground at the South Pole and took pictures of them and said we'd get in touch with their families when we got back," Captain Buck said.

Honolulu Star-Bulletin
HONOLULU, Nov. 17

The 27,000-mile "Polecat" flight ended at 10:25 a.m. today in Honolulu after a race against time around the world via the North and South Poles.

The chartered Boeing 707 jetliner, crammed with equipment and $30 million worth of insured scientific talent, touched down at Honolulu Airport completing its historic globe-circling attempt.

The jet was about seven hours behind its original flight plan, but the delay did not detract from the scientific or record-breaking purpose of the flight.

No aircraft had ever attempted to circle the Earth over both Poles.

The pilots, who commanded the round-the-world flight, marveled at the brightness of the South Pole.

Captain Robert N. Buck, one of the five pilots on board, said, "We were in sunshine all the way from Buenos Aires to Christchurch."

"But we were in the dark all the way from Honolulu to London, although we could see ice flows," he said.

Buck said at the South Pole they circled several times and talked with the men on the ground at radar stations there.

"We told them we would tell their wives that they are in good shape and that we saw them," he said.

"They got a big kick out of it, and they could see our contrails in the sky at 37,000 feet."

Buck said, "We could see the antennas at the South Pole very clearly." He described the flight as a routine trip.

Some crew members came down the ramp of the plane dressed in red flight suits and others in orange, although the pilots were dressed in the same blue uniforms they wear for their respective airlines.

Most of the observers were dressed in civilian suits with cameras dangling from their necks.

All seemed in good spirits after the 27,000-mile flight.

On hand to meet Bernt Balchen, veteran polar pilot, was an old friend, retired General Erik Nelsen, of Kailua-Kona.

The flight took off from Honolulu at 7:44 p.m. Sunday with stops at London; Lisbon, Portugal; Buenos Aires, Argentina; and Christchurch, New Zealand.

The plane began running behind schedule after two delays, stemming from the London stopover.

Because London's longest runway was under repair, the jet could not take off with enough fuel for the flight to Argentina. It had to refuel in Lisbon.

Then some of the crew and observers got stuck in an elevator at London Airport and had to be sawed out, causing an hour's delay.

Leaders of the flight, however, were confident that they would complete the historic attempt within the predicted 56-hour 48-minute flight time. They did.

Captain Fred L. Austin, a T.W.A. pilot and commander of the flight, called it the "last blazing flight in aviation."

The flight was sponsored by Rockwell-Standard Corporation, manufacturer of airplane and automobile parts, Colonel W. F. Rockwell, 77, chairman of the board, was on the flight.

He said his firm was underwriting the $2 million flight in the interest of broader research in intercontinental aviation.

The battery of scientists was headed by Dr. Serge A. Korff, professor of physics at New York University.

After taking off from Honolulu Sunday, the jetliner bucked headwinds of 150 knots en route to London, but still set a non-stop record of 13 hours and 42 minutes.

U.S. FIRES H-BOMB IN THE ALEUTIANS

80-Kiloton Blast Is Set Off 2,300 Feet Underground to Develop Detection Gear

By United Press International

AMCHITKA ISLAND, Alaska, Oct. 29 — The United States exploded an 80-kiloton hydrogen bomb today 2,300 feet below the surface of this small Aleutian Island. The experiment is expected to produce important data for the monitoring of future bans against nuclear testing.

The experiment, called Project Long Shot, required two years of preparation at a cost of $10 million. The readings of shock waves at 211 stations throughout the world are expected to enable scientists to distinguish between man-made explosions and natural seismic disturbances.

Radiation instruments in the immediate area showed no change in readings after the blast, indicating no gas leakage from the underground test.

At Adak, about 200 miles east of this island, no jolt was felt.

The University of California seismograph at Berkeley recorded a shock less than eight minutes after detonation at 5 P.M. Eastern Daylight Time.

In Washington, the Pentagon said the explosion had been detected 3,200 miles away in Montana 8 minutes 29 seconds after the shot. The signals were recorded by the Pentagon's Advanced Research Projects Agency.

The seismograph at the University of Washington in Seattle, about 2,000 miles from the explosion, did not get a reading because stormy weather masked the seismic effects.

The Long Shot explosion was the equivalent of 80,000 tons of TNT, or about four times as powerful as the bombs dropped on Japan in World War II.

About three dozen Russian fishing vessels and two whale factory ships were reported in the general area, but whether or not they had detection gear was not known.

The New York Times Oct. 30, 1965

SEISMIC TEST: Hydrogen bomb was set off at cross.

PROTECTION — Some one-tenth of the world's sea otter population lives near the blast site.

The explosion was originally scheduled for 5 P.M. Wednesday, but poor weather conditions forced postponement then and again yesterday.

The signal to set off the blast was given by a computer to make sure that the bomb was detonated precisely at the appointed time.

Some of the readings from the shot will be evaluated in a matter of days. Other records will be studied and correlated over periods of weeks and months.

The experiment was designed to provide means of detecting underground nuclear explosions, a necessity in the event of total international regulation of any use of nuclear explosions.

More than 100 sensitive instruments of various kinds were employed by the project's command post here, directed by Col. D. I. Prickett. Some of the instruments were in helicopters and other aircraft flying over the island at the time of the blast.

Preliminary checks after the explosion indicated no casualties among the estimated 2,000 to 3,000 sea otters of the island, which is a refuge to insure an increasing population of the once nearly extinct mammal.

Extensive hazing operations were carried out over the last three days to drive the animals out to sea. Conservationists had feared they would be injured by the blast.

Conservationists Annoyed

The New York Times

ANCHORAGE, Alaska, Oct. 29—The president of the Alaska Conservation Society said today that he was less concerned over the possible destruction of a few sea otter by the nuclear blast at Amchitka than over the "secrecy of the military" in the early stages of planning project Long Shot.

Prof. Frederick C. Dean of the University of Alaska said by telephone from College, near Fairbanks, that the society had had no official observers in Amchitka.

David Spencer, refuge supervisor for Alaska of the Federal Fish and Wildlife Service, was planning a post-explosion survey.

Dr. Dean questioned the wisdom of "secrecy—the ability the military has to go into an area without public knowledge and without a proper study of the ecology of the area."

"They should be working with ecologists from the beginning instead of waiting until forced to do so by public outcry," he said.

FEW ANIMALS FOUND HURT BY ATOM BLAST

The New York Times

AMCHITKA, Alaska, Nov. 1 —Virtually no damage to wildlife in the Amchitka area has become evident since a controversial nuclear explosion was set off 2,300 feet underground on this windswept Aleutian island last Friday.

The loss has been put so far at a few cod and char, a fish resembling the Dolly Varden trout, and two or three birds.

This was reported today after ground, sea and aerial surveys had been made by teams representing the Federal Fish and Wildlife Service and the University of Washington. The university has a contract with the Atomic Energy Commission to evaluate the effects of the blast upon wildlife.

Conservationists had been concerned especially with the island's sea otter population, estimated at 2,000 to 3,000.

"We have checked for dead sea otter and found none," said David Spencer of Kenai, the fish and wildlife refuge supervisor for Alaska.

"We have seen quite a few live ones—a number comparable to those sighted before the explosion took place," he continued. "The sea otter were dirven out of Cyril Cove, more than a half mile from the blast point, two or three days before the explosion, and now they have moved back in."

The Friday explosion, the Defense Department's long-planned Project Long Shot, was designed to try to establish means of differentiating between nuclear blasts and earthquakes.

THE ISLAND—Amchitka is covered with lakes, tundra and World War II quonset huts.

Alaskan Eskimos Helped by Herd

WASHINGTON (AP) — Uncle Sam is loaning reindeer to Eskimos in Alaska.

The Bureau of Indian affairs has agreed to ship 200 head from its Nunivak Island herd to three Eskimos who have leased grazing rights on Hagemeister island in Bristol Bay.

If the animals prosper and multiply, the loan will be repaid in the form of reindeer.

MUSK OX THRIVING ON ALASKA FARM

New Wool Industry for Poor Eskimos Is Planned

The New York Times

COLLEGE, Alaska, July 14 — A shaggy, playful 360-pound yearling musk ox tore out of a thicket on a University of Alaska farm here this week and headed toward a herdsman who had just shouted:

"Hey, Duke, come on, baby!"

The dark, curious animal was followed by others in a herd of 22. They had been tackled by a former Harvard fullback last summer and fall in icy lakes and lagoons on Nunivak Island off the southwestern coast of Alaska and flown to Fairbanks.

Prof. John J. Teal Jr., an anthropologist and geographer, is going back to Nunivak in September for 10 more female calves to round out the herd. Then, with 19 females and 13 males, he plans to start in a year the selective breeding of the animals here on the university's farm.

The aim is to distribute the herd's progeny among Alaska's Eskimos, providing a basis for a new home industry for many who are living at a bare subsistence level. The plan envisions the use of the musk ox's thick, warm lightweight undercoat of fine wool—called qiviut in some Eskimo dialects—in sweaters and other garments.

"Since this musk ox venture was announced," Professor Teal said in a telephone interview from his Vermont home, "there is scarcely a major textile firm that hasn't been in touch with us."

This is because the annual yield from a musk ox, a prehistoric, once almost extinct animal, is around six pounds of qiviut, compared with a three-ounce wool yield of the cashmere goat. Professor Teal says a man's sweater has been knitted with four ounces of qiviut.

"But my own feeling is running to the sociological," said Professor Teal, a leading American authority on musk oxen. "I think more and more of the Eskimo villages in the Arctic and of training Eskimo women to spin and knit so that they will get the financial returns themselves. Appalachia seems a prosperous region compared with what the Eskimos have in some of those coastal areas."

Professor Teal, in 10 years of experimentation with a small group of Canadian musk oxen at the Institute of Northern Agricultural Research Huntington Center, Vt., had proved that the animals were easily tamed.

With a five-year grant of $336,520 from the W. K. Kellogg Foundation, he joined the University of Alaska faculty last year to capture 33 calves from a wild herd on Nunivak and start a program of domestication.

An expedition last July left him 19 calves short. To speed things, he had used a helicopter to scatter a herd. Then his procedure was to leave the plane, stalk a calf and tackle it. With only two men, he went back in October and found the calves then averaging more than 250 pounds each "and far more aggressive."

"We captured 31 in a week, diving into ponds, creeks, swamps, ledges ad infinitum in pursuit of them," Professor Teal said. "We were sopping wet to the shoulders all day and our clothes turned to ice—a fairly brisk experience."

He kept the finest 23 specimens of 52 animals captured last year. One died in March, apparently of a form of colic.

"But the loss of this one calf opened up a whole new field of research and shot our program ahead a couple of years," Mr. Teal said. "That was the most useful lost animal I ever encountered."

Day to day, almost hour to hour, watch is kept over the herd.

The daily routine calls for bringing the animals in at 4:30 P.M. from an eight-acre pasture to the feeding pen, where they are kept all night after they have been individually weighed. They still suck evaporated milk out of a nipple pail, each drinking up to five quarts.

The musk ox is about as big at maturity as an old Texas longhorn, with bulls weighing 900 to 1,000 pounds. They grow massive curved horns that were removed but grew back.

Eskimos in Northernmost Incorporated Village Are Working on Life's Comforts

By LAWRENCE E. DAVIES

The New York Times

BARROW, Alaska, July 15—Parka-clad Eskimos here at the top of the world are reveling in a new natural gas distribution network while they dream of water and sewage systems to come.

And while their fuel bills dropped 50 to 75 per cent they talk about the improvement they will make on their unpretentious homes with the money saved. And some plan to "gravel up" their yards. For, as one of the Eskimos—Sam Taalak, manager of Barrow Utilities, Inc. — remarked:

The Talk of Barrow

"The only way we can landscape around here is to put gravel on the tundra."

A landscaped yard in Barrow means one from which tin cans and trash have been cleared and a layer of fine gravel neatly spread. These "lawns" are relatively rare.

Barrow so far has remained unimpressed with Chamber of Commerce clean-up drives aimed at ridding yards of clutters of empty oil drums, placed there to receive garbage and sewage that may stand for months before being moved out of the village.

But there are no flies or mosquitos to complicate matters, and progressive Eskimos think they detect the beginnings of civic pride that may pay off in a few years.

UNTIL now the almost 2,000 residents of this northernmost incorporated village in the country—nearly all of them with Eskimo blood—have had to spend a sizable part of their incomes just keeping warm.

Fuel oil bills have run "pretty close to $2,000 a year," even for the simple one-/and two-room houses that predominate in a village that now is booming with new construction work.

The villagers celebrated last night the advent of the new natural gas system, to which about 270 residences and commercial enterprises—practically the whole town—are hooked up. Senator Ernest Gruening, Democrat of Alaska, and other officials were here for the dedication, which State Senator Eben Hopson, an Eskimo who is president of the Village Council, said marked "a milestone in the fight for survival in the Arctic."

Mr. Taalak foresaw an average payment of $600 a year for natural gas, which had been flowing past the envious villagers for 15 years to Government installations from wells within the nearby naval petroleum reserve. Congress last year passed legislation sponsored by Senator E. L. Bartlett, Alaska Democrat, authorizing the drilling of a well to supply Barrow.

A loan from the Bureau of Indian Affairs financed the system's construction, with a nine-member, all-Eskimo directorate managing the cooperative.

BARROW, once a nomadic village, was incorporated in 1957, when 750 residents made the decision at a meeting presided over by John H. High, an Oregonian who was then United States Commissioner here.

Now the village takes pride in a new street system, but not before scores of irate residents had given Al Hopson, a Barrow native, "some of the worst cussings out I have ever had."

Mr. Hopson, a cafe owner whose father, a whaler, married an Eskimo, agreed under urgings from Washington to supervise the moving of nearly 100 houses. The town site had been surveyed and 60-foot streets agreed upon. The houses marked for moving, some of them distances of eight or 10 blocks, were in the proposed streets.

"The first thing I did was hire a man for every pickaxe in town, to dig through the top layer of permafrost," Mr. Hopson said. "We had to free the houses from the ground before winter set in. This let cold air in under them and the townspeople were furious. But I let their cussing go in one ear and out the other. The 14-month job, though, still isn't quite finished."

The biggest Eskimo village in Alaska would be a dubious claimant to architectural or town planning prizes. Even the new streets are at times quagmires of fine gravel that make driving and walking precarious.

Barrow talks, too, of the potential effects of legislative reapportionment. Political leaders fear it will cut the total of "ice bloc" Senators and Representatives along the Arctic from the present seven down to four and reduce the potency of the Eskimo in the state government.

'SANTA' GOES BY BOAT TO ALASKAN ISLANDS

SEATTLE (UPI) — Generations of children have known Santa Claus as an air traveler, but youngsters on the lonely Pribilof Islands, in Santa's own backyard, know he comes by boat.

And it's no easy journey. The trip starts here in late November when the motor vessel Pribilof loads up with goods and gifts, bought through catalogs.

It's a mean trip in the winter, according to Capt. Fred Langbehn, skipper of the vessel, which makes four trips a year to the islands of St. George and St. Paul.

The Pribilofs are in the Bering Sea, about 250 miles off the coast of Alaska. The hardy Aleuts who live there rely on the ship to supply most of their needs.

Among the items this time were fireworks. The inhabitants set off fireworks on New Year's Eve, since the Fourth of July occurs during the long Arctic "day," when the sun doesn't set for months.

The Pribilof will make a special stop this trip to pick up trees at Dutch Harbor, the World War II submarine base in the Aleutians.

SCIENTIST LOOKS A GRIZZLY IN EYE

Close-up Picture Is Part of Arctic Research in Alaska

By LAWRENCE E. DAVIES
The New York Times

BARROW, Alaska, July 15—A grizzly in the Arctic Research Laboratory's zoo 6 miles south of Point Barrow received a shot of a tranquilizing drug today.

Armed with a 20-pound portable camera, Dr. Ralph G. Janes of the University of Iowa Medical School gingerly crept toward the bear. He placed the camera lens carefully one centimeter from the bear's eyeball and began taking photographs.

"I am sure that grizzly wasn't asleep," Dr. Janes remarked afterward somewhat shakily, to associate and helpers.

The scientist, studying 15 varieties of animals, from the lemming to the moose, is interested in such matters as blood vessel patterns and eye pigmentation. He will return in February to take more pictures to determine whether the Arctic winter has caused any major changes in the eyes of his subjects.

Dr. G. Edgar Folk Jr., with his wife, Mary, from the same medical school as Dr. Janes, were at work placing radio capsules in the stomach cavities of animals representative of 10 groups of Arctic mammals. The little radio transmitters send messages to nearby recorders showing the heart rate, body temperatures and electrocardiograms.

"My field," Dr. Folk said, "is environment — increasing daylight on the habits of animals."

One of his favorites was a 28-pound porcupine, which he described as "a delighful animal, with lots of personality."

Projects such as these, some of 70 being carried out this year, have brought about a major expansion of the zoo at the only laboratory the United States Government is supporting for year-round research in the Arctic.

The laboratory, which was established by the Office of Naval Research, is operated under contract by the University of Alaska. The university is hoping to get a $3,000,000 appropriation from this session of Congress to replace some of old Quonset buildings used as scientists' headquarters, research facilities and living space.

"These old structures cost more to repair than to replace," said Dr. Max C. Brewer, a 41-year-old geologist and geophysicist. He has been in the Arctic for 15 years, on leave of absence the last nine from the Geological Survey's office in Menlo Park, Calif. He directs the laboratory here.

In his office with a row of telephones—including one military "hot line"—within reach, Dr. Brewer noted that many of the scientific projects operated under the laboratory's supervision had little military value despite the installation's Navy origin.

"Of course," he said, "what survival is like, what logistics are like, is of interest to the military. A big chunk of Russian land lies in the Arctic and they have to live there. But the United States had not considered the Arctic up to the second World War."

The laboratory has added to its earlier domain eight deactivated sites of the Distant Early Warning (DEW) system, which were declared surplus. These were added to 13 other sites scattered along the Arctic slope.

"They are set up," Dr. Brewer related, "so that a scientist can go out in any time of year, except freezeup and breakup time, open the door, turn on the stove, grab a packet of food and go to work on a scientific project. Instead of his having to go out and spend 90 per cent of his time existing, everything is taken care of except cooking. There has been an amazing increase in productivity as a result. We can give a man any kind of environment he wants, from mountains to sea."

The laboratory's projects range "from the extreme in biology to the extreme in physics," as Dr. Brewer put it.

The director is proud of a rocket-launching complex the laboratory built a few miles away for the National Aeronautics and Space Administion.

"It is for the firing of meteorological rockets," Dr. Brewer explained. "They investigate space from 25 to 75 or 80 miles in the air, operating between the balloon area 20 miles up and the effective satellite area 100 miles up."

He said that the basic job of the laboratory was this:

"If somebody wants to do a job in the area it is up to us to tell them how to accomplish it and to assist in accomplishing it."

Staffing the laboratory, except for the native Eskimos, is difficult under present conditions, Dr. Brewer said.

"Without better facilities we can't get the senior people we need," he asserted.

Oil Fever Is Starting to Climb In Alaska Drilling Operations

By LAWRENCE E. DAVIES
The New York Times

FAIRBANKS, Alaska—Alaska's oil fever is climbing.

Discovery wells are becoming almost commonplace in Cook Inlet, below Anchorage in south central Alaska, and now some of the major companies are preparing to begin drilling with deep-hole rigs late this year on the Arctic slope, hundreds of miles to the north.

Between mid-July and mid-August, a barge will make its way up Canada's MacKenzie River to the Arctic Ocean and head west to the Colville River in Alaska during a brief, ice-breaking period.

Its cargo will be an oil drilling rig, which will be moved to a drilling site when the Arctic ground, rivers and creeks are frozen by November.

Then the British Petroleum Exploration Company (Alaska) Inc., and Sinclair Oil and Gas Company, equal partners in the venture, will begin drilling in a frigid area that geologists believe holds vast oil reserves.

The Richfield Oil Corporation and the Humble Oil and Refining Company hope to fly a disassembled rig from Fairbanks over the Brooks Range to a site east of Umiat, 350 miles north of here, in October.

A group made up of the Atlantic Refining Company, the Pan American Petroleum Corporation—a subsidiary of Standard Oil Company (Indiana)—and the Sun Oil Company, with Atlantic Refining as the operator, has tentatively announced its first drilling operation on the North Slope.

The Shell Oil Company and the Standard Oil Company of California, meanwhile, are obliged under a development contract to begin drilling in the Arctic by next July 1.

It is thought here that the flying of drilling rigs from this inland Alaskan city to North Slope sites will become accepted practice by all the major companies.

New excitement over the oil possibilities in the Arctic area was spurred by the offering at Anchorage by the State Division of Land of 754,000 additional acres of land for oil and gas leasing.

The area, comprising 297 leasing sites, extends eastward along the Arctic slope from a point about 150 miles east of Point Barrow. It is outside the Navy's petroleum reserve where the presence of oil in commerical quantities was proved during the World War II and post-war periods.

Peaks Named for Churchill

Oct. 24

The north an dsouth peaks of Mt. McKinley in Alaska will be known henchforth as Churchill Peaks in honor of the late Winston Churchill.

The White House announced yesterday that President Johnson had approved the designation, first proposed by Interior Secretary Stewart Udall.

Mt. McKinley is the highest mountain in North America, rising 20,320 feet above the subarctic wilderness of Alaska.

Mr. Johnson said it was fitting that the "majestic peaks be named in Sir Winston Churchill's honor."

"Soldier, author, statesman, he was one of the greatest leaders in the history of English-speaking peoples, and he devoted his life to the twin goals of peace and freedom. Sir Winston was an honorary American citizen, the second man in history to be so honored by the people of the United States," he said.

92 Mile an Hour Winds Batter Western Alaska

ANCHORAGE, Nov. 14—Winds of up to 92 miles an hour battered the shore of Norton Sound in westren Alaska today and authorities ordered evacuation of the Eskimo village of Unalakleet.

The 650 residents of the village are being taken in Air Force and Federal Aviation trucks up a six-mile road from the costal village to Unalakleet Air Force Station.

ANCHORAGE, Alaska, Nov. 15 (AP)—More than 600 weary villagers, refugees from two howling Arctic storms in less than a week, flocked back to their battered homes at Unalakleet today. Bulldozers cleared debris that icy 90-mile winds and high seas had shoved into the little Eskimo village.

Kennedy Passage Asked

JUNEAU, Alaska, Nov. 24 (AP)—The State Geographic Board decided today to recommend that the ship passage from the Gulf of Alaska to Cook Inlet between the Barren Islands and the southern tip of the Kenai Peninsula be named Kennedy Passage in honor of President Kennedy. The Board also voted to recommend that the passage between the Barren Islands and the northern tip of the Kodiak Islands group be named Stevenson Entrance, in honor of the late Adlai E. Stevenson.

POLAR BEAR STUDY SOUGHT BY ALASKA

Scientists From 5 Nations Urged to Exchange Data

By LAWRENCE E. DAVIES
The New York Times

ANCHORAGE, July 9 — Alaska is preparing to block a possible polar bear crisis before it can develop.

Nobody knows whether the striking Arctic ice pack traveler, often measuring eight to 10 feet long, is increasing or diminishing in numbers. There are no valid estimates of the world population of the polar bear, which roams thousands of miles over the Arctic wastes on the great ice floes.

But every year there is an increase in the number of polar bears killed in Alaska by airborne trophy hunters.

Scientists of five countries interested in determining the status of the polar bear are to meet at the University of Alaska near Fairbanks Sept. 6 to 11.

Senator E. L. Bartlett, Democrat of Alaska, and Secretary of the Interior Stewart L. Udall, in a joint announcement in Washington this week, said that participants were expected from the Soviet Union, Canada, Norway, Denmark and the United States.

The number of polar bears killed by sportsmen in Alaska this year will set a record exceeding 300. This is almost three times the total in the years before the sportsman adopted the airplane in his quest for hides.

"We don't have a crisis yet, but we want to avoid a crisis," said Walter Kirkness, commissioner of the State Department of Fish and Game.

TARGET OF TROPHY HUNTERS: The polar bear, subject of international conference at University of Alaska, dictated by actions of growing number of flying hunters.

"Senator Bartlett has talked to us for years about the polar bear," Mr. Kirkness said, "but we couldn't give him figures on population or how many animals were killed in other countries.

"Our information about the bear's life history is very spotty," he continued. "We hope this conference will lead to establishment of a mechanism for exchanging information. We would like to arrive at some idea of the polar bear population and whether it needs more protection."

A preliminary meeting was held last month at Winnipeg, with Canada, Norway and the United States represented.

Alaskans brought back estimates of an annual polar bear kill of 500 to 550 in Canada, where sport hunters are barred by law from taking this animal. The killing is all by Eskimos.

The Norway kill was put at 300 to 400 a year, and Denmark's, mainly on Greenland, was said to be probably not more than 50.

"Information we have indicates that the Russians do not hunt polar bears for sport," said Jack Lentfer, game biologist for the Alaska department, who supervises the polar bear.

James W. Brooks, director of the Fish and Game Department's Division of Game, reported that there had been a definite decline in polar bear population in Greenland, whereas, he said, for Norway "people seem to think there has been an increase."

Mr. Brooks offered figures for Alaska's polar bear kill, emphasizing that the pre-1961 figures were not accurate.

He said that the average kill was 117 bears a year from 1925 to 1953, 142 from 1954 through 1960, 200 in 1961 and 1962, and 253 in 1964.

The total so far this year is 292, he said.

The season for sport hunters ended May 10, but Eskimos may hunt for food whenever bears are available. This means a certain total kill exceeding 300, Mr. Brooks said.

Although Alaska officials are not alarmed, Eugene Miller, a Fairbanks lawyer and member of the State Fish and Game Board, noted that the next polar bear season had been shortened by 20 days. It will run from Oct. 15 until next April 10.

"Moreover," Mr. Miller said, "the commissioner has the authority to curtail or extend the season at any time he feels an emergency situation is threatened."

The Alaska game officials made their comments in a joint interview while attending the 45th annual conference of the Western Association of State Game and Fish Commissioners, which ended today at the Anchorage-Westward Hotel here. Mr. Brooks is this year's association president.

The Alaska officials indicated that a subsequent international conference might go into the question of marking polar bears as part of a broad study. An animal would be immobilized by being shot with a dart equipped with a drug-filled syringe, then permanently earmarked with a number and perhaps tattooed.

Earth Crust Studied in Canada

HALIFAX, N. S. (Canadian Press)—Science students from Dalhousie University are studying the earth this summer without standing on it. They left here in July aboard the oceanographic vessel Hudson for geological and geophysical studies of the earth's crust under Hudson Bay.

ALASKA'S FLAG

Seven gold stars form the Big Dipper on a field of sky blue in Alaska's flag. These stars are a symbol of the gold in that state. An eight-pointed star in the corner represents the North Star, symbolizing the most northern state in the Union.

Polar Bear Conference

Delegates of five nations (Canada, Denmark, Norway, USSR, and USA), meeting at the University of Alaska in Fairbanks on September 6–11, 1965, in the First International Scientific Meeting on the Polar Bear produced the following items of concordance:

A number of scientists and conservationists of northern nations who feel a responsibility for the preservation of Arctic animals have been concerned about the adequacy of scientific knowledge for the effective management of polar bears. That concern led to the holding of the First International Scientific Meeting on the Polar Bear at Fairbanks, Alaska, September 6–10, 1965. The proceedings of this meeting have confirmed that scientific knowledge of the polar bear is far from being sufficient as a foundation for sound management policies.

1. It is the mutual opinion that as polar bears are found not only on lands and seas of nations around the Arctic Ocean but in international waters as well, and that as polar bears move over large areas beyond national waters, polar bears be considered as an international circumpolar resource.

2. It is mutually recognized that each nation, within whose territory polar bears are found, or whose citizens harvest the species in international waters, should take such steps as each country considers necessary to conserve the polar bear adequately until more precise management, based on research findings, can be applied.

3. It is agreed that all cubs and females accompanied by cubs require protection throughout the year.

4. It is the mutual opinion that each nation should conduct to the best of its ability a research program on the polar bear within its territory or adjacent international waters to obtain adequate scientific information for effective management of the species. It is recognized that each nation will determine the character of its research.

5. Each of the nations participating in this meeting should give consideration to the prompt exchange of research and management information obtained on polar bears. It is suggested that the International Union for the Conservation of Nature and Natural Resources, or a similar international organization, be invited to receive and distribute information on polar bears submitted to it. It is therefore desirable that each nation designate an agency or office responsible for receiving and distributing polar bear information both nationally and internationally.

6. It is desirable that future international scientific meetings be called on the polar bear when urgent problems or new scientific information warrants international consideration.

7. The requirements for the completion of matters arising from the First International Scientific Meeting on the Polar Bear suggest that the Office of the Secretary General be continued until final documents have been printed and distributed to participating delegations and until other business directly associated with the conference has been dealt with.

The Wildlife Society News

EDUCATION STIRS ALASKAN ESKIMOS

Primitive Life Left Behind in Single Generation

By LAWRENCE E. DAVIES
The New York Times

BARROW, Alaska, July 15 —Alaska's Eskimos on the rim of the Arctic Ocean are caught between their traditions and the march of civilization.

This is the time of year when hunters—boys of 10 or 12 and men of 40 and 50 years—climb into their walrus skin boats with outboard motors.

They head four or five miles into the now relatively ice-free Arctic and come back with seal to store for winter's use in the "deep freeze"—the "Eskimo ice cellar" dug in the permanent frost. They often work all night at the task.

Meanwhile, as the last movie flickers out at the Polar Bear theater at midnight, the sun is still above the horizon and Barrow's teen-agers who are not involved in gathering the winter's meat supply are in no mood to go home.

The 10:30 P.M. curfew is not enforced at this season, when the sun hangs above the horizon throughout the night. So Barrow's youth, brought up on native primitive dances, spend the early morning hours doing the latest steps popular in New York and San Francisco discotheques.

Evelyn Stine, a 17-year-old Eskimo waitress at Al's Coffee Shop, where "Living and Loving You" was pouring from a record machine, was asked what the Barrow youth favored in dance music.

"Anything," she replied, "that's good for dancing—the jerk, the monkey, the jitterbug and the slow dance. Some do the twist."

Miss Stine explained that the dances had been brought back to Barrow by high school and college students who spent their winters at the native high school at Mount Edgecomb, near Sitka, at Sheldon Jackson Junior College at Sitka or at schools including Haskell Indian School in Kansas and the Chemawa Indian School near Salem, Ore.

Alaska's 23,000 Ekimos are in a difficult period of transition. Many of them have not gone beyond grade school. Many older Eskimos speak and understand little English. They talk Eskimo dialects in their homes.

The new emphasis is on schooling to prepare for jobs that the Eskimos hope will materialize as Alaska develops. Barrow is getting its first high school.

Tom Brower, a storekeeper, hotel man and restaurateur whose father was a whaler and whose mother was an Eskimo, said he had seen the natives "jump in one generation from a fur-trapping economy as primitive as their ancestors to where they are realizing the value of money."

"It has taken a long time," he said, "for me to convince older Eskimos that a dollar saved is a dollar earned. Some of the more progressive ones would deposit their money with me for safe keeping till the bank came in.

"But I had my troubles. If Joe had $1,000 on deposit and he were 50 or 60 miles away when Jerry and Tom, his brothers, needed money, they were mad at me if I wouldn't give them some of Joe's.

"Now they are gradually realizing, with a bank here, that the things I tried to tell them about money are true."

Mr. Brower credited the Eskimo population with implicit honesty.

"I carry 500 open accounts at my stores," he said. "I never have any trouble with the native people. My only trouble is with the whites."

Raul O. Calvillo, Texas-born manager of the Miners and Merchants Bank branch in Barrow, which opened three years ago, described the Eskimos as "good risks while they have jobs."

"We have 400 savings accounts, including those of school kids," he said, "and we have granted loans up to $8,000 for building a house."

The Eskimo, with or without formal education, has shown himself to be a quick lerner. But Capt. Bill English, the handsome senior pilot of Wien Alaska Airlines, who was born in the native village of Wiseman in the Brooks Range, reported "increasing interest in the native people in going beyond grade and high school."

"The younger people especially are seeing value in advanced education," said Capt. English, an Eskimo who is a Wien stockholder and who is taking business administration courses at the University of Washington during the winter.

"Civilization certainly has come to this part of the country and it's necessary for the native people to have training to get jobs," he said.

Dr. Max C. Brewer, director of the Arctic Research Laboratory, operated here by the University of Alaska for the Office of Naval Research, pointed to Pete Sovalik, an Eskimo in his early sixties, as "the embodiment of the missing link between the old and the new cultures."

Mr. Sovalik, who takes care of the laboratory's animals, "is at home in both cultures, more so than his sons," Dr. Brewer observed.

"He is probably the best naturalist we've ever had in northern Alaska, and he has had only six weeks of formal education," Dr. Brewer continued. "He has almost total recall of events for 50 years. He leads a dance band—he's one of the best of the native dancers —and he knows the scientific names of all the region's animals, where they are found and their habits. He knows nearly every river in northern Alaska and can take a map and show you even where the eddies are in the streams."

Mr. Sovalik himself commented with a smile:

"I've been working here at the lab since 1949. I will stay as long as I'm needed, then go back to hunting and trapping. That was my life and I like it. But civilization, with its education, is good."

TEAM FINDS REMAINS OF ALASKAN CULTURE

PROVIDENCE, R. I., Oct. 14 (AP)—A Brown University expedition has uncovered the remains of threeancient houses in Alaska that are among the oldest in North America. It has also found flint knives believed to be 8,000 years old.

The expedition, headed by Prof. Froelich Rainey of the University of Pennsylvania, wa sto the Onion Portage on the Kobuk River in northwestern Alaska, 50 miles above the Arctic Circle and 100 miles inland from the Chukchi Sea that separates Alaska and Siberia.

A university announcement today said that the discoveries may unlock the mysteries of the migrating tribes that have passed through Alaska since the end of the Ice Age, when a land bridge is believed to have connected Alaska and Siberia.

Remains of two of the circular houses were found at the 4,000-year-old level along with flint tools. The third was found 2½ feet below the first two. All three houses belong to the Denbigh Culture.

The third house "is among the oldest yet found in the Arctic," said Mrs. J. Louis Giddings, curator of Brown's Haffenreffer Museum, where the artifacts brought back from Alaska will be studied.

The expedition reported finding 30 "cultural levels" at the site.

Most Alaskans Face A Risk of Radiation From Diet, U.S. Says

WASHINGTON, Dec. 23 (AP) — Scientists of the United States Public Health Service reported today that radioactive caribou and reindeer might pose a health threat to nearly all residents of Alaska and not just, as previously reported, to Eskimos living near the Arctic Circle.

For years health authorities have been keeping close watch on the Eskimos following findings that they were ingesting high levels of radioactive cesium, a constituent of fallout from nuclear bomb tests.

Scientists had concluded that the reindeer and caribou passed on the radioactivity to the Eskimos. The animals, a principal diet item in the Far North, feed on lichens—plants that scientists say absorb bomb fallout "like blotting paper."

But today's report by the Health Service said there was now evidence that Alaskans who did not make caribou or reindeer meat part of their main diet still had levels of radioactive cesium four times higher than the average for the rest of the United States.

Regular eaters of the meat have been found to have radioactivity levels up to 22 times higher than that average.

"These results indicate," the report said, "that high (human) body burdens of cesium 137 are prevalent throughout most of Alaska; the area includes the Alaskan peninsula, but excludes the southern panhandle area and some northern interior villages."

The researchers said the reported levels did not exceed the radiation protection guidance recommendation by the Federal Radiation Council.

But they also said that, based on the new findings, "the Public Health Service is continuing its program of surveillance in Alaska."

The authors of the report were Daniel W. Bruce, D. G. Remark and W. J. Averett, researchers.

1,200 Hail Lowell Thomas; Message Sent by Johnson

Lowell Thomas was honored by 1,200 persons at a $100-a-plate dinner at the Waldorf-Astoria Hotel Nov. 22

President Johnson sent a message of praise for the noted author, journalist, explorer, and film producer, who has completed 35 years in radio broadcasting. "Long before jetliners shrunk the world," the President said, "Lowell Thomas had it in his pocket."

There were also congratulatory messages from former Presidents Dwight D. Eisenhower and Harry S. Truman.

The proceeds of the dinner will help finance the $2.6 million World Center for Exploration planned for the Explorers Club at 46 East 70th Street.

U.S. Coast Guard Cutter Bear jammed in the ice off the northern coast of Alaska, 1890.

Long and Honorable Life

THE TRACK OF THE BEAR. By William Bixby. Illustrated. 309 pp. New York: David McKay Company. $5.75.

By JIM LOTZ

THE seas of the world and the polar regions are perennial lures, challenging men with mysteries to unravel and vastnesses to conquer. And when ships have sailed into the polar regions the results have been either tragic or triumphal. The ships of Sir John Franklin were caught, crushed and sunk in the Arctic ice. The sailors were cast into an alien environment that offered them neither food nor shelter. All died. Other expeditions, setting out in sturdier or luckier ships, sailed into glory. Fridtjof Nansen's Fram drifted right across the Arctic Ocean and ended her voyage with all on board safe, sound and happy.

Of all the vessels that challenged the polar ice, none was more famous than the U. S. Coast Guard Cutter Bear. When she sank in 1963, while being towed from Nova Scotia to Philadelphia, it seemed as if a sort of polar Flying Dutchman had finally found rest. For the Bear, like the Flying Dutchman, kept turning up all over the place. She was launched in 1874, and sent out to the Newfoundland seal fisheries. Then she was bought by the U. S. Government and sent to rescue Lieut. Adolphus W. Greely and his men in 1884. One of the most dramatic rescue scenes in the whole history of polar exploration took place when members of the Bear's crew reached Greely and the six starved survivors of his expedition at Cape Sabine. The Bear, famous as the ship that had rescued Greely, was well on her way to developing a personality all her own.

After the Greely rescue, the Bear was transferred, in 1886, to the Revenue Marine Service. For 40 years she patrolled the waters around Alaska. At times, her master and crew represented the law over a large area of land and sea. She transported reindeer from Siberia to Alaska, rescued trapped whaling crews from the Arctic ice and dispensed castor oil and comfort to Eskimos. The Eskimos knew the Bear as "Puk Umiak" (Fire Canoe). The whalers looked to her for help in time of trouble, and tried to avoid her when they engaged in smuggling liquor to the Eskimos or shipping Eskimo women on board as "seamstresses." Members of the Bear's crew took part in one of the forgotten sagas of Arctic endurance, the Overland Relief Expedition. In the winter of 1897-98, they traveled fifteen hundred miles across Alaska to bring food to trapped whaling crews at Point Barrow.

In 1926, the Bear was retired to a quiet berth at Oakland, Calif., where she served as a museum. In 1932, Admiral Byrd bought her, refitted her, and sent her south to Antarctica. She sailed there through latitudes with some of the worst weather in the world. In Antarctica, the Bear served as a supply and exploration vessel until 1941. Then she went to war, patrolling the east Greenland coast. At the end of World War II, she was decommissioned. In 1962, she was sold to a Philadelphian who wanted to use the ship as a museum-restaurant. On her way to an honorable retirement, she fought her last battle with the sea—and lost.

The story of the Bear is full of drama, tragedy, humor and heroism, and William Bixby has managed to capture most of it in his book. His biography of the ship is detailed, exact and exciting. The book has maps, drawings and diagrams of the ship, a list of captains, a detailed account of her movements, an index, a bibliography and photographs. Mr. Bixby has written a full and fascinating epitaph for this most famous of all polar vessels.

NEW YORK TIMES BOOK REVIEW

Mr. Lotz, who has traveled widely in the Arctic, is a member of the Canadian Department of Northern Affairs and National Resources.

The White Continent

THIS IS ANTARCTICA. By Joseph M. Dukert. 191 pages. Illustrated. Coward - McCann. $3.95.

DESIGNED for readers aged 10 and up, but with only a few sentences that can be characterized as "written down" to children, Mr. Dukert, of the Martin Company's Research Institute for Advanced Studies at Ruxton, here presents a broad account of Antarctica and the activities there from the time of the earliest sightings and explorations down to the present, and tells also what may be expected in the future.

Himself a veteran of work on the White Continent, he describes first-hand its beauties, its discomforts and its perils, discusses the puzzles of its very existence and the change in its climate from lush to the world's bleakest, tells of its birds, and the seals, whales and other inhabitants of its waters, of the progress of travel from dog-team to jet plane.

The scientific studies that are under way, and the international cooperation that is in effect despite cold and hot wars elsewhere and clashing claims to territory, and the workers' day-to-day way of life are also told of. Nearly 100 photographs illustrate all phases of the account. The book is one that not only young, but adult readers will find interesting and informative.

HERVEY BRACKBILL.
Baltimore Sun

ON SKIS TOWARD THE NORTH POLE, by Bjorn Staib, translated by Christopher Nordman (Doubleday, $4.50). An account retracing Admiral Peary's journey to the pole.

TARGET—ARCTIC: Men in the Skies at the Top of the World, by George Simmons (Chilton Books, $7.50).

Developing Canada's North Is Still a Problem

By JAY WALZ
The New York Times

FORT SMITH, Northwest Territories, June 29—A new federal commission visited here a few days ago in search of fresh answers to an old question: What should Canada do about her Northwest Territories?

Fort Smith, just above the Alberta border, is the gateway to a vast northland that is one-third of all Canada. Its mainland and archipelago extend to the North Polar region, and from Greenland to Alaska. No survey has yet determined the territories' wealth in timber, oil and other minerals, not to mention fish and wildlife. The resources are believed to be enormous.

A northland enthusiast said this week: "If Canada would turn about and face north, instead of south, it would become a great nation." This was to say that Canada, by working less with the United States and more on her northern territories, might grow strong and rich on her own.

However, Canadians are plainly not turning north. There are, in fact, only 25,000 people there, excluding the Yukon, which is a separate territory and is well on the road to handling its own affairs. Half of the Northwest Territories' inhabitants are Indians and Eskimos whose interests seldom go beyond community affairs. "White" settlers, as non-Indians and non-Eskimos are called here, are to be found is only a few for the larger towns, almost all of them in the Mackenzie River Valley.

Trading with the Indians, gold prospecting and, more recently, opening ore mines have lured some hardy souls over the years, but the call of "manifest destiny" that drove Americans across the Western plains has never been heard in the Canadian north.

Fort Smith's 2,000 residents are largely southern Canadians, but they are government employes serving out two-to-four-year "hardship" assignments for ministries and departments in Ottawa.

"No one but a few Indians would stay in Fort Smith if the Government pulled out," said the manager of a general store.

Fort Smith aspires to be the first capital of the Northwest Territories, but this is by no means settled. A suitable site will be one of the matters the new commission will look into.

Dr. Gordon Butler, Northern Affairs Chief in the Ministry of Health and Welfare, told a visitor of the difficulty his department has staffing the new government hospitals and clinics with doctors and nurses.

"Candidates for posts feel their opportunities for careers lie in the big cities of eastern Canada, or in the United States," he said. "In the north they see not a challenge but the long, cold, dark winters."

The winters here are nine and one-half months long. The temperatures fall to 70 degrees below zero, and in the Arctic reaches the sun doesn't appear for six weeks in midwinter.

In summer, the weather can be bright and warm, and the sun may shine at midnight.

"The summers and winters are both unnatural and outsiders find it hard to adjust," said a Hay River school teacher, a Briton who emigrated to the northland 10 years ago. He spoke of his futile efforts to organize a dramatic society as a means of diversion.

"I enlisted women and children, but could not attract any men," he reported. "My feeling is that too much leisure time here is spent in our bars, drinking the dull hours away."

The Canadian Broadcasting Company has radio stations in Fort Smith, Hay River, Yellowknife and Inuvik, but southerners say they miss television. There is none.

Arthur Laing, Minister of Northern Affairs and National Resources, recently returned from a 14,000-mile tour of Soviet Asia to study Russian ways of attacking the towering problems of Arctic and sub-Arctic development. Much impressed by what he saw, Mr. Laing says that the Soviet Union has longer experience than Canada in this field, and that Siberia has many more people to work with.

The new commission, headed by A. W. R. Carrothers, dean of law at the University of Western Ontario, will advise Mr. Laing on the course the Canadian Government should follow in the north. It will hold hearings across the territories, beginning in August, to lay the groundwork for recommendations.

The people, even though they are few and scattered, feel that more self-government and more direct government would be an inducement to faster settlement. Rule from Ottawa, now in effect, is slow and cumbersome.

One question the federal Government is studying is the division of the Mackenzie, or western, district from the eastern Arctic region. This would open the way for the Mackenzie Valley, where most of the population lives, to move ahead toward self-rule and eventual provincial status.

One obstacle to self-government and autonomy is the region's dependence on the federal Government for income. The Northwest Territories grossed $20 million last year from gold and other mines, fish and handicraft. But the federal Government spent more than three times that total on administration and development projects in the area.

Only Sea Otter In Captivity Reaches New Home

TACOMA, Wash. (AP) — Gus, believed to be the only sea otter in captivity, was at his new home Dec. 4 after a long journey by ship and car.

Gus was captured in the Aleutian Islands Nov. 7 by the crew of a fisheries vessel doing research in connection with the Oct. 29 nuclear device test at Amchitka Island.

Gus was kept in a pen of sea water for the trip to Seattle; then transferred to a car for the trip to Tacoma's aquarium.

QUEBEC DISPUTES ENSNARE ESKIMOS

Rift With Ottawa Deepens Integration Problem

By JAY WALZ
The New York Times

OTTAWA, July 17—Quebec's 3,000 Eskimos have been caught up in the political contest between Ottawa and the province in which they live.

Will they remain Federal wards or will they become real Quebeckers? Does the Anglican majority face the prospect of being converted to the Roman Catholic religion? Will the 95 per cent who speak English have to learn French?

These questions hung over Ottawa this week, where it was reported coincidentally that Canada's Eskimos, being integrated into modern society, are running into problems of mental disturbance.

The uproar over Quebec's Eskimos was set off by the province's Premier, Jean Lesage. In a speech opening a new school for Eskimos in the north, he asserted provincial claims of full jurisdiction over members of this indigenous race.

In Ottawa, Prime Minister Lester B. Pearson explained that he had agreed with Mr. Lesage only in the transfer to provincial authority of some local administrative services for the Eskimos. But defending himself from Opposition charges that his Liberal Government pursued a policy of "pampering" a headstrong Quebec, Mr. Pearson insisted that the Federal Government intended to continue "to discharge its obligations to all Eskimos.

Arthur Laing, Federal Minister of Northern Affairs and National Resources, said Ottawa had no thought of "divesting ourselves of the care of Eskimos."

However, John Diefenbaker, leader of the Conservative Opposition, hotly accused the Pearson Government of treating the Eskimos as "political chattels."

What the Eskimos think about it all is hard to learn, since they have no official representatives of their own race in Ottawa.

Later, Mr. Lesage dismissed charges that the Protestant Eskimos would lose their Anglican affiliation.

"There is no question of our intending to try to convert these people," he said. "We are not involved in a crusade for souls."

Mr. Lesage said his provincial government was concerned only with providing Eskimos with all possible assistance in achieving the goal of integrating with other Canadians.

Mr. Pearson claims no less for the Federal Government's Eskimo policy. In a long-range program, he says he would give all provinces more and more control of their indigenous peoples as these people are integrated in the whole society. The integration process will take many years.

Integration of the Eskimos is particularly difficult because of their isolation from the white man's civilization, their adjustment to a cold climate, and their traditions based on a life of hunting and fishing.

The transition from hunting and fishing to a wage-based economy is already having a great effect on the mental health of both Indians and Eskimos. This has come to the attention of Ottawa authorities and only last week Dr. Gordon Butler, chief of Canada's Northern Health Service, began a tour of Greenland and Denmark and other northern European countries as a first step of what he hopes will be a major research project on mental health problems in Canada's North.

Dr. Roger West, an English physician who has been working among the Eskimos of Frobisher Bay, told reporters here a few days ago that education had proved a "detriment" to many Eskimos. He said teaching them to read and write had proved useless both to them and to the white man.

Dr. West complained that Eskimo boys, after completing grade school, were not given job opportunities and sent back to their native villages. They showed they had lost the touch of hunting seals and living off the land," he said.

New Town in the Arctic

Inuvik, 2,258 Strong, Hopes to Be Capital of Canadian North

By JAY WALZ
The New York Times

INUVIK, Northwest Territories, June 28—Passengers in the twin-engine aircraft flying over the intersection of the Arctic Circle and the Mackenzie River surveyed an expanse so watery that Noah's flood seemed to be just ebbing.

The Talk of Inuvik

The northland's great river, breaking up into a myriad of streams, and the surrounding pools and lakes of melted snow covered one-half to two-thirds of the surface. The protruding lowlands, according to game wardens, are alive with fur-bearing animals—muskrat, Arctic hare, white fox, mink, lynx and surviving herds of reindeer and caribou. Mosquitoes abound, too.

There are no signs of human habitation and, according to Capt. James Tomlinson, the pilot, on a winter's night not a single ground light would be shining anywhere. In late June, though, there is no night here, and one views the wilderness through the amber light of a perpetual sun.

The New York Times July 10, 1965

Three hundred and fifty miles beyond the Arctic Circle the plane settled on a broad, mile-long gravel airstrip and taxied to a modern terminal marked "Inuvik," which is Eskimo for "the place of man."

Inuvik is a new town just emerging from a flurry of construction. Its site, on a river bluff, was selected as a safer, more amenable location for the Eskimos and Indians of Aklavik, an old trappers' settlement on uncertain and hardly tenable delta ground 35 miles west by air or 70 miles by water.

Inuvik is already the largest Canadian community north of the Arctic Circle, and it is ambitious to become the first capital of the Northwest Territories. But of the 2,258 Inuvikians fewer than one-third are Eskimos and only 11 per cent are Indians. Sixty per cent are "whites," as Canadians from the south are called here. Most of these are civil servants in branch offices of Ottawa ministries and departments.

THE weather, which ranges from 75 degrees above zero in June to 75 below in January, and in summer the mosquitoes, are facts of life that inhabitants of Canada's north have learned to cope with.

Permafrost is another fact that Canadians trying to develop the north are only beginning to live with. Old Aklavik could never grow into a modern community, partly because of the threat of high waters every spring and also because it was built on soil only a few inches above permanently frozen ground. Heat from modern buildings would cause the subsurface permafrost to melt, and then, since drainage is poor, foundations would heave and sag.

As Arthur Laing, the Federal Minister of Northern Affairs and National Resources, said a few days ago, Canada must "stop fighting permafrost and learn to treat it as a friend."

Permafrost, extending to a depth of 1,000 feet, is the friend that gives Inuvik a solid base, and Inuvik has gone to great pains not to disturb it. The $5 million airstrip is laid over an insulation of gravel eight feet thick. It was designed "to hold the frost in." The Sir Alexander Mackenzie School, large enough to accommodate 890 pupils, is built on wood piles so that a free flow of cold air may keep the heat in the rooms from thawing the ground below.

For the same reason, sewers, water mains and steam pipes cannot be laid underground. So Inuvik engineers have devised the "utilidor," a metal-clad, above-ground tunnel to carry steam heat and water to all buildings and carry sewage away.

WHILE Inuvik has its complex of government buildings and public housing, a supermarket, a first-class hotel, a movie theater and a department store, it is dominated by its churches and by the Mackenzie school.

The school was built by the Government not only for Inuvik's children but also for those in communities throughout the delta and Arctic coastal region.

Inuvik's promoters here say that Inuvik, far from being the "$50 million blunder" some detractors have termed it, will soon have 5,000 residents. Regional government operations, they say, are bound to increase, and trade and commerce will grow. Commercial flights already connect Inuvik three times a week with Edmonton, 1,200 miles south.

But so far Inuvik has failed to attract the people for whom it was originally designed—the Eskimo and Indian trappers of old Aklavik.

Lyle Trimble, who went to Aklavik several years ago as a constable of the Royal Canadian Mounted Police, settled there as an owner and pilot of a plane in charter service. He is married to an Eskimo.

Asked why the planned evacuation of Aklavik had not taken place, Mr. Trimble, who is now the elected representative of the delta dwellers on the Northwest Territorial Council, explained that many old-timers feared they would lose their traditional trapping grounds if they moved away. And, he added, "to many of us Aklavik is home and Inuvik is not."

The New York Times (by Jay Walz)

ARCTIC LANDMARK: Roman Catholic church designed in the form of an igloo is one of the new buildings in Inuvik, the new community in the Northwest Territories of Canada. Because of permafrost, steam and water are moved above ground in tunnel, foreground.

Phone Devised for Eskimos

"Hullo — opahraytah—givum me seal-bear-fox-duck-seal-fish, pluheez." Not yet a reality, a phone designed by John Cushing, president of Sitka Telephone Co. in Alaska, would undoubtedly be welcomed by the non-English speaking Eskimos in the area, according to "Modern Communications." Mr. Cushing's inspired idea is a phone with little hand-carved ivory animals around the dial one for each finger hole.

HOVERCRAFT TEST IN ARCTIC SLATED

Ottawa-London Teams Plan Trials in Canadian North

OTTAWA, Dec. 24 (Canadian Press) — A Canadian-British team will find out next year how a hovercraft stands up to the rigors of the Canadian North.

Tests of the 20-passenger hovercraft of the Westland Aircraft Company of Britain will be carried out in the Inuvik-Tuktoyaktuk area in the Delta of the Mackenzie River and along the Beaufort Sea coast in the Arctic.

Archie Pennie, deputy chairman of the Defense Research Board, said in a recent interview that the chief object of the trials is to determine whether hovercraft can be used efficiently for northern communications and supply.

Mr. Pennie heads a group of the Federal Advisory Committee on Northern Development which is lending assistance to the British team of 15 to 18 persons. Canada's Departments of Defense, Northern Affairs and Mines are all interested in the project.

A hovercraft rides on a cushion of air over land, water or ice and, depending on conditions, can travel up to 70 miles an hour. It can clear obstacles about four feet high.

Mr. Pennie mentioned several possible uses of hovercraft in Canada — a mobile laboratory, offshore as well as on land, for g·ological and other surveys; antisubmarine work and transportation from Ottawa to Montreal.

The British company now is testing its hovercraft in the Malaysian defense activities in Borneo to move troops and supplies along waterways and in the deserts of Aden. The British here want to find out how the craft would stand up also to cold weather and travel across river and sea ice during a spring breakup. It is believed that the hovercraft could operate in bad weather when a helicopter could not.

"We'll never know whether the hovercraft is better than the helicopter unless we try it," Mr. Pennie said.

The hovercraft is scheduled to be flown from Britain to Tuktoyaktuk in a Royal Canadian Air Force transport plane in the spring for the tests, which will last into summer.

Besides the R.C.A.F., the Canadian Army, Defense Research Board and six other government departments or scientific agencies will assist in the evaluation program.

Trapper Leads Self-Help Drive In Canadian Eskimo Community

Tells Territorial Council of Villagers' Need for Road, Power and Equal Pay

By JAY WALZ
The New York Times

TUKTOYAKTUK, Northwest Territories, June 27 — John Steen, president of the Tuktoyaktuk Community Association, rose to address his visitors from the south—members of the Teritorial Council.

"We are trying to better our village," he said, "We have a few problems we can't solve, but we try to improve anyway."

Mr. Steen spoke at a luncheon in the new community hall, which he said had been built by volunteers. The specialty on the menu was muktuk, an Eskimo delicacy derived from the thick underskin of the whale. Cut into small squares and dressed in oil, muktuk has a flavor like that of mushrooms on bland cheese.

The speaker told his guests, who make up the governing body of Canada's vast northland, of the village's need for a road, an electric power line and equal pay for equal work performed by Eskimos employed at the Government's local transport works. He spoke, too, of the community's desire to build a fence around the hilltop cemetery to keep the children of the adjoining school from playing on the burial grounds.

The New York Times (by Jay Walz)
John Steen

Tuktoyaktuk is a village of 50 families, all Eskimo except for one Indian, on the Beaufort Sea. It is on the eastern fringe of the Mackenzie River delta 200 miles above the Arctic Circle. "Tuk" men mostly trap for white fox, muskrat and bear in the animal-rich delta, which now includes a reindeer grazing reserve.

Mr. Steen has for more than a year been leading a self-help drive to get Tuktoyaktuk on a sounder economic footing and its inhabitants off Government relief entirely. He is a trapper in his early 30's who acquired his boat, traps and guns with money he saved while working for a time at the Distant Early Warning (DEW) line station maintained by the United States and Canada just across the harbor.

Mr. Steen said he was the son of a trapper "who always told me he was Flemish, but I have always thought I was part German."

"And, of course," Mr. Steen added, "I am one-quarter Eskimo."

Mr. Steen learned his English at the Roman Catholic mission school in Aklavik, 100 miles up the delta.

As Mr. Steen conducted his visitors on a tour of his village a brisk wind off the Arctic Ocean blew the offshore field of ice into the harbor. Surveying the condition of the ice, Mr. Steen predicted it would break up and melt in about 10 days.

"But this spring has been slow," he said. "That's why our cleanup program is so behind time."

Ice-Bound Outpost 'Thaws' for 10 Weeks

WASHINGTON. — Canada's Hudson Bay port at Churchill, Manitoba, booms 10 weeks each year, then hibernates through a long winter.

Late in June, ice in the bay and Churchill River begins to break. It cracks into myriad floes that float out to sea or pile up on shore. The 250-year-old port town becomes watery with slush.

Churchill's business and population soar during the brief warm weather, the National Geographic Society says. Workers swarm into town to unload freighters from around the world and fill them with grain from Canada's Prairie Provinces — Alberta, Saskatchewan, and Manitoba.

The ships disgorge goods ranging from toys to tractors. Most come from England and continental Europe. In turn, more than 20,000,000 bushels of wheat are poured into waiting holds.

Ships brave the forbidding waters, perilous with icebergs, for a sound economic reason. This route to Europe is 1000 miles shorter than the route down the St. Lawrence River.

Churchill cannot be reached by car or truck. No road extends into this desolate region. Twice weekly, however, the Muskeg Express leaves Winnipeg and chugs across rails through the bleak tundra to Churchill. When weather permits, a plane lands regularly.

Static in Space Helps 'Dew' Line

By Science Service

WASHINGTON — Radio static from outer space, a scientific curiosity that can at times annoy radio reception, was harnessed to assist the Distant Early-Warning (DEW) Line protecting our continent's northern boundaries, it was disclosed here today.

The DEW Line is a 6,000-mile chain of vital radar and communication stations strung out above the Arctic Circle from eastern Greenland across Canada to the tip of Alaska.

Once each day, the radio communication beams of the DEW Line "looked" at the noisy center of our galaxy. This readily available and constant noise source was used to check the sensitivity of DEW Line receivers by day-by-day comparison.

Pop's boss man in Eskimoland

MONTREAL (AP) — Papa is definitely top man in the igloo, says a British researcher who spent a year living among the Eskimos of Frobisher Bay in the Northwest Territories.

"In Eskimo marriages the man is the boss to a much greater extent than he is in white communities," said Dr. Roger West, who served aboard the government hospital ship C. D. Howe.

CANADA'S CARIBOU FACE EXTINCTION

Fewer Than 200,000 Are Left Out of 3 Million

By JAY WALZ
The New York Times

OTTAWA, Dec. 24 — The "Santa Claus reindeer" of Canada is engaged in a struggle for survival.

His numbers are diminishing so rapidly that men of the Canadian Wild Life Service fear that "Tuktu," the beast with the handsome antlers, may soon be remembered only in illustrations for "'Twas the Night Before Christmas."

"Tuktu" is the Eskimo word for deer and it refers to a breed that is virtually the same as the European reindeer. In Government terminology, however, "Tuktu" is a "barren-ground caribou."

A one-time population of three million, ranging the Canadian north, is reduced now to fewer than 200,000 and conservationists are still asking what is to be done. How to promote propagation? Should laws be enacted to reduce the destruction of the herds?

The concern is not over a Christmas legend but over the social development of the Canadian north. The herds could be a $135 million asset, according to one Government appraisal. They could produce meat to feed the Eskimos and Indians and be of tremendous help in leading indigenous peoples from an uncertain nomadic existence to a good living as herdsmen and ranchers.

On a flight over the Mackenzie River delta last summer, reindeer could be observed grazing on an experimental farm at Reindeer Point. Here was a Government attempt to "manage" the deer back to larger herds.

The sight of herds of reindeer, or caribou, feeding on the short tundra, green in June; inside the Arctic Circle was beautiful and impressive. A game warden aboard the plane pointed out the station where up to 700 animals from a herd of about 8,000 were to be slaughtered annually to provide meat for the local population.

The experiment, however, is not working out well. Eskimos hesitate to pay high prices for meat they are free to hunt. Historically both Eskimos and Indians are trappers and hunters. Too often, one is told, they yield to the temptation to make a quick dollar or obtain a quick meat supply by killing, rather than husbanding, livestock.

At best the experimental farm could not alone reverse the decline of the caribou population over the Northwest Territories from Baffin Island and the Mackenzie River to northern Ontario.

Fraser Symington of the Wild Life Service calls it a complicated social problem involving Eskimos, Indians, wolves and the white man. In a new book, "Tuktu—A Question of Survival," Mr. Symington declares that laws might be desirable but would not by themselves solve the difficulty and would not be understood by the indigenous hunter in search of food and shelter. Eskimos use hides for tents and hut covering.

Mr. Symington says the caribou are the victims of excessive hunting by Eskimos and Indians.

"A single family of Indians or Eskimos living in relative isolation 'on the land' needs 100 to 150 caribou (or deer) a year," he writes. Still the human population in Canada's Northwest Territories, about 25,000, is not so large as to deplete the caribou population if the animal crop were "harvested" in any organized way.

"Human kill alone has nearly equaled the annual calf crop in most years since 1948," Mr. Symington writes. "When this happens, decline of the herds is inevitable."

The author reports that the rate of decline in the deer population accelerated after the white man came to the north. Firearms made it easier to kill the animals. In addition, forest fires destroyed large amounts of the slow-growing lichens that the northern deer lives on in winter.

Hungry wolves pursue the herds during their migrations and take a heavy toll, especially of defenseless calves.

Mr. Symington thinks that "wolf control" is easier to achieve than "human control." But how to effect it? He is not sure. Something should be done, he feels, to get Eskimos and Indians off a largely caribou diet and impel them to take advantage of many other sources of food in most parts of the north—fish, moose, snowshoe rabbit, muskrat, beaver, bear, sea mammals and waterfowl.

Though the author wrote "Tuktu" as a report to his Government, the volume, attractively illustrated and printed, may be purchased for $2 from the Queen's Printer in Ottawa.

A DIMINISHING BREED: The "barren-ground caribou" (in Canadian Government terminology), or "Santa's reindeer" (as millions of children prefer to call them), are decreasing in Canadian North, as bison once did in U.S.

SOVIET TEAM VISITS CANADIAN BUILDINGS

WHITEHORSE, Yukon Territory (Canadian Press)—The spokesman for a six-man Soviet construction delegation visiting Canada said recently that both Canada and the Soviet Union could benefit greatly from an exchange of experts.

Andrei I. Slivinsky, a member fo the Soviet Council of Ministers and chairman of the State Committee on Construction, did not elaborate but it was presumed he meant experts in northern construction.

Mr. Slivinsky and five colleagues were in Whitehorse on the 11th day of an 18-day tour of construction projects north of the Arctic Circle and in the near north. The visit, sponsored by the Department of Northern Affairs, began Aug. 16 in Ottawa and swung into northern Quebec before heading west by way of Churchill and the larger communities in the Northwest Territories.

It has been evident the last several days that the Russians are becoming increasingly interested in the construction methods they have been shown at such places as Pine Point and Inuvik in the Northwest Territories.

In Inuvik, recently, Mr. Slivinsky told an informal gathering that he and his party had learned much from their visit.

"We have mastered the problem of building big cities in our north," he said, "but we have learned a lot at Inuvik about creating small communities under similar Arctic conditions."

Find Oldest Fossils

Hanover, N.H., Nov. 4 (UPI) — A Dartmouth College geological team has discovered in the Canadian Arctic the oldest animal fossils known to man.

The fossils are at least 720 million years old and the Dartmouth College announcement today said the findings "push back the known dates of animal life by at least 120 million years."

The team headed by Prof. Andrew H. McNair found fossilized remains of small, clam-like creatures called brachiopods, fossilized tracks and trails made by burrowing wormlike animals, and small tubes and spines of an as-yet-unknown species.

Danes to improve Greenland

AIRMAN DANGLES FROM JET TANKER

Suffers Frostbite as Window Fails Over Greenland

WHITTIER, Calif., Dec. 30 (UPI)—The story of a young Air Force lieutenant who dangled from a jet tanker traveling 600 miles an hour 35,000 feet over Greenland was disclosed today by his father.

The temperature outside the KC-35 tanker was estimated at 100 degrees below zero when the incident occurred three weeks ago, according to the father, Roland Beck of Whittier.

The son, First Lieut. Bradley Beck, 24 years old, was reported in good condition at Lackland Air Force Base in San Antonio, Tex., where he is recovering from severe frostbite. His father gave this account:

The plane, a military version of the Boeing 707, had just completed an in-flight refueling over Greenland and was returning to the Fairbanks, Alaska, Air Force Base when the window to Lieutenant Beck's right cracked.

Lieutenant Beck yelled a warning to the other three members of the crew, grabbed his helmet and had just put it on when the window exploded outward.

As he was sucked out, he felt his seat belt slip, then hold, leaving him dangling, his head and shoulders outside the plane. As he fought to remain inside, suction whipped off his helmet, which struck one of the plane's wings.

The pilot immediately reduced the plane's speed from 600 miles an hour and gradually brought it to a lower altitude while the navigator grabbed Lieutenant Beck's legs and pulled him from the window.

The plane landed at Thule Air Force Base in Greenland, the nearest base with hospital facilities. After two weeks of treatment at Thule, the lieutenant was flown to Lackland.

Hospital authorities there said one of his hands was in good shape but the other had not responded as well. However, they said there was no thought of amputation.

Not So Green Land

Except for a thin strip around the shoreline, almost all of the island of Greenland is covered by a sheet of ice. At its highest point, the ice sheet is more than a mile thick.

By Gordon N. Converse, chief photographer

Greenland Craggy

The Christian Science Monitor

Upernavik, Greenland

In town of Godthaab, Danes and Greenlanders join in effort for economic uplift.

Upernavik is the northernmost village on this island's western coast at which passenger ships call regularly.

With its population of 1152, it is an excellent example of why Denmark will spend $600 million in the next 10 years to improve the living conditions of 35,000 Greenlanders. Since 1953, Greenland has been an integral part of the Danish kingdom.

The village is the district center for a hunting region with a total population of about 2,500 who live in the fairly narrow strip between the ice cap and the sea.

Upernavik's harbor is open to shipping only four months a year. In that time everything from fuel oil to schoolbooks and tooth paste must be delivered. From October to May its only link with the outside world is radio. Even during August, giant icebergs float into its harbor.

U.S., Canada list joint air exercise

By the Associated Press

Langley AFB, Va.

Tactical Air Command bases around the country will send men and equipment to participate in the Alaskan Command's exercise, Polar Sweep, next month, its headquarters announces.

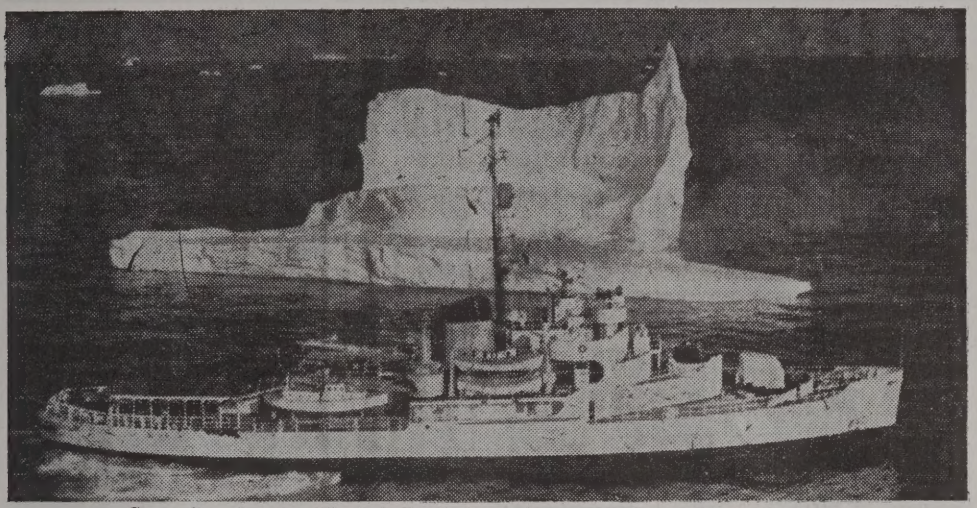
Lt. Gen. Raymond J. Reeves, commander in chief of the Alaskan Command, will oversee the United States-Canadian maneuver, which will be augmented by units of the United States Strike Command Army and Air Force.

Actual field operations will be conducted from Jan. 24 through Feb. 3.

Polar Sweep will help in the evaluation and further development of procedures for the command and control of the joint forces, General Reeves said.

Information on cold-weather operations and equipment testing will be provided by the mock war.

The 1966 exercise will be the fifth consecutive years in which Canadian forces have participated.



Coast Guard cutter Westwind sails by an iceberg during cruise to the Arctic.

This summer the icebreaker, commanded by Capt. Frederick A. Goettel, USCG, of Mystic, Conn., broke a way through ice-filled Artic waters for supply ships of the Military Sea Transportation Service's Operaton SUNEC 1965.

Annually the Atlantc Division of MSTS, with headquarters in Brooklyn, carries out a large scale resupply operation to transport materials and eqiupment to far northern defense outposts.

The Westwind broke through pack ice June 26 to Thule, Greenland, after establishing the Cruncher Island radio beacon at Sondre Strom, Greenland, to signify opening of the Arctic maritime season. She was the first ship to arrive at Thule since her departure from that port in September, 1964.

Made Deliveries Possible

The cutter's task during July was to break a path into Thule through the ice fields for thin-hulled MSTS supply ships. In August, the icebreaker made possible delivery of 800.000 gallons of fuel oil and other supplies to the isolated radar site at Kulusuk on Greenland's east coast, making her way through large masses of closely crowded icebergs.

During late August, the men aboard enjoyed 10 days of rest and relaxation in Bergen, Norway. After escorting the last supply ships this year in and out of Thule, the Westwind left there Sept. 28, closing the port until next summer.

Since then, the icebreaker worked slowly southward, closing various defense ports of Greenland and Labrador ahead of the approachng Arctic winter, and peforming important oceanographic research.

The Westwind has been assigned Artic resupply escort duties since 1956.

Greenland's bases link in U.S. defense

SONDRESTROM, Greenland—American Air bases and radar stations on this Arctic Island form one of the most important links in the air defense of North America.

However, the men here frequently consider themselves "forgotten" because the people back home know so little about their work. Yet Americans from Tampa to Toledo to Tacoma sleep more safely at night because they are here.

The two bases are Sondrestrom and Thule. The former, which is located just above the arctic circle, is responsible for keeping the eastern end of the "dew line" (distant early warning line) radar chain supplied.

Thule, which is the northernmost settlement on the estern coast, is the home of a giant early-warning ballistic missile radar station.

Sondrestrom was first established during World War II as a transit field for U.S. aircraft being ferried to Britain.

It is located in a desolate valley resembling the science-fiction conception of the moon's surface. The nearby fjord is ice-free only seven months a year.

In 1945 Washington closed its Greenland bases and returned them to Denmark which owns the island. But when the Korean War broke out a new agreement was signed with Copenhagen which provided for the reopening of Sondrestrom, the construction of Thule, and the development of radar stations.

The biggest threat to the United States then was manned Russian bombers. To meet this, four radar stations were built across the waist of Greenland at roughly the latitude of the Arctic Circle.

There is one on each coast and two on the ice cap itself. They are an extension of the "dew line" stations located in northern Canada and are in constant touch with the headquarters of the North American Air Defense Command (NORAD) as they track the movements of all aircraft in this part of the Arctic.

As missiles became important, the U.S. built a giant radar complex at Thule. Working in coordination with similar stations in Alaska and northern Scotland, it can track any missile which might be fired across the North pole.

Until last year there were also jet bombers and refueling tankers from the Strategic Air Command. These have now been withdrawn.

Today Sondrestrom is definitely a "back water" base, but it still forms a vital link in the American "defense in depth" system.

However, it isn't always easy for the 700 men stationed here to realize this.

During the long Arctic night with the blizzards raging outside they frequently ask the question, "what are we doing here when they are fighting in Vietnam?"

What the men miss most are mail and their wives or girl friends.

Mail is sporadic. Sometimes there is a delay of two or three weeks because of bad weather. But when it does arrive—even if it is 2 a.m.—it is immediately sorted and the base radio station announces it can be picked up at the post office."

Conditions at Sondrestrom are luxurious compared with those on the ice cap. There are between 40 and 50 civilian employes of the Federal Electric Corporation (FEC) living at each radar station.

Space is at a premium. Bedrooms are small cubicals and the recreation and dining areas give a visitor claustrophobia. Yet radar and communication specialists manning them spend 18 months here.

Their only links with the outside world are the two giant ski - equipped C-130s which ferry in supplies, mail, and movies.

Polar Bears Said Evolving Into Inhabitants of the Ocean

URBANA, Ill. (Science Service)—In a process of evolution that will take millions of years, the polar bear is turning its back on land and returning to the place where all life began, the ocean.

The polar bear, Ursis maritimus, is a mammal because, among other things, it has warm blood and nurses its young with milk. Unlike most mammals taking a swim, the white bear does not use its hind legs to kick while in the water, Dr. Martin W. Schein of Pennsylvania State University, told members of the American Institute of Biological Sciences recently.

The bear uses its feet as a rudder, like a whale uses its tail, explained Dr. Schein, who has been studying the seagoing bear on Spitsbergen Island near Norway at the edge of the Arcit Ocean. In the slow evolutionary process, the hind feet may eventually become a tail.

Other mammals that have returned to the sea over the ages include the whale and the wlrus.

Largest living carnivorous animal on land is a variety of the grizzly bear on Kodiak Island.

CURBS TIGHTENED ON WHALE FLEETS

World Body Moves to Avert Danger of Extinction

By JOHN HILLABY
The New York Times

LONDON, July 3—The world's whale stocks are to be conserved through regulations ratified here last night by representatives of 13 nations.

The regulations include the demarcation of whale sanctuaries and the imposition of catch limits on certain species in the Antarctic. A proposal put forward several years ago for an international inspection system to enforce restrictions was again defeated by commercial rivalry between Japan and the Soviet Union.

The agreements followed five days of discussions at the annual meeting of the International Whaling Commission.

Apart from the hotly debated international inspection project and the disclosure of the widespread capture of undersize whales, delegates devoted most of their time to conservation methods.

The commissioners were unable to set a limit on the total world catch, but the Antarctic catch has been progressively reduced so that within three years the three remaining pelagic, or deep-sea, whaling nations — Norway, Japan and the Soviet Union—will not endanger breeding stocks. The Antarctic catch is composed largely of fin and sei whales. Blue whales are almost extinct.

The Antarctic catch limit for the coming season—4,500 units—is higher than the number of whales expected to be killed. The gap between target and achievement enables whale-fleet owners to write off part of their capital investments as a loss.

An examination of the total number of whales caught last season has shown that yet another species, the blunt-nosed sperm whale, which feeds on giant squid, is in danger of being decimated if not exterminated.

Catching is largely concentrated on the relatively small females in tropical waters that cannot be legally caught by the pelagic fleets if they are less than 38 feet long. Sperm whales are now to be protected within 40 degrees north and south of the Equator.

Discussions on allowing international observers aboard the whale ships to check the records of national inspectors ended inconclusively. The representatives of the three pelagic nations were asked if they would assent to the project.

According to a delegate who was present, "Norway said yes, Japan said yes and Russia said not quite yes, but not no."

The Soviet Union, the delegate said, agreed in principle to the proposals. But its representatives said that until the Soviet Union had what they considered a fair share of the Antarctic whale quota it would not be prepared to give total assent to the observers.

Quotas were determined five years ago and Japan has since bought out the Dutch fleet. This gives her 52 per cent of the total quota, compared with 28 per cent for Norway and 20 per cent for the Soviet Union.

The agreement reached at the meeting reflects anxieties about the preservation of numerous other fishery pacts, especially those between Japan and the Soviet Union in the Pacific.

Wildlife Group Seeking Protection for Whales

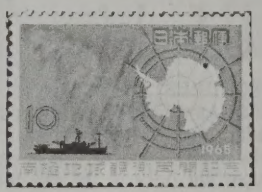
LONDON (AP)—An official of the World Wildlife Fund has cautioned against the unrestricted killing of whales.

Ian McPhail, director of the fund, said: "The whale has become a domestic animal. Do we kill off our bulls and cows at the rate the whale is being killed?

"If nothing is done about it, the blue whale will become extinct in the sixties. And the sixties will be inscribed in our history as the decade in which man put himself on the moon and killed off the largest mammal on earth."

In Tropics First

WHERE can Antarctic stamps be obtained from post offices situated in the Tropics? The answer is: in Australia. It is a side-effect of the decision to issue separate stamps for the Australian Antarctic Territory, the first of which came out in 1957.



JAPAN. Multicolored stamp publicizes Re-opening of Antartic Expedition

Being issued by the Australian Post Office, however, the Antarctic stamps are also valid for postage throughout Australia, and each new stamp for the Antarctic Territory is placed on sale in Australia for a short period when it is first issued.

Although this is another example of issues produced mainly for political reasons, the stamps do find a genuine postal use on the mail dispatched from the permanent Australian bases in the Antarctic regions—as well as on philatelic mail from Australia.

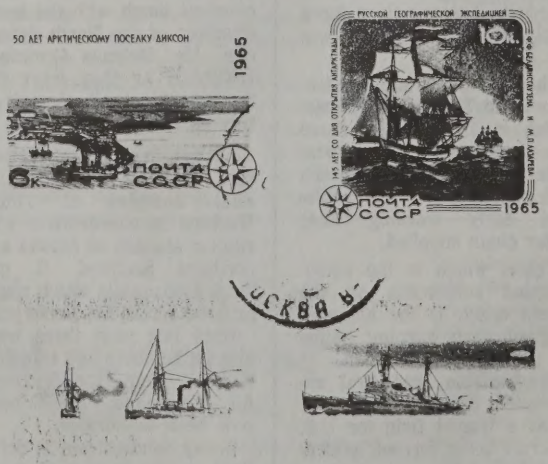
The first of these Antarctic issues, illustrated here, is a 2s value which ranks as Australia's largest stamp, being 1¾in long excluding the perforations.

The design shows the Australian flag being flown in the Vestfold Hills district of Antarctica in 1954, and also includes a map of the region in relation to Australia.

This stamp has the unusual distinction of not being used in the territory named on it until nearly nine months after its first appearance. The explanation for this curious state of affairs is that the stamp was duly placed on sale in Australia when it was ready on March 27, 1957. But, because of the timing of the relief expeditions to the Antarctic bases, the date of issue there did not come until December 11 of that year.

Only a few stamps have been produced so far for the Australian Antarctic Territory, but all are of interest. One, a 5d value, shows members of the Shackleton expedition at the South Magnetic Pole in 1909.

Yet the stamps actually used on that famous expedition were not those of Australia at all but of New Zealand—the current 1d stamp being specially issued for the purpose in 1908 with an overprint reading "King Edward VII Land."



RUSSIA. "Antartic Expedition" set of five bicolored stamps, including 4 K values printed se-tenant.

FRANK DEBENHAM, POLAR EXPLORER

Professor Dies in England —On Scott's Expedition

CAMBRIDGE, England, Nov. 24 (AP) — Prof. Frank Debenham, one of the last survivors of the Scott Antarctic expedition, died last night in a nursing home. He was 82 years old.

Professor Debenham, an Australian, joined Capt. Robert F. Scott's expedition in 1910. Captain Scott and four companions perished in a trek to the South Pole. Professor Debenham returned in 1913.

During World War I Professor Debenham served in the British Army. He was professor of geography at Cambridge University from 1930 until 1949, when he led an expedition to the interior of Zambia, then Northern Rhodesia.

He leaves his wife, a son and four daughters.

Geologist on Scott's Ship

Professor Debenham was geologist aboard the Terra Nova, the vessel that took the Scott expedition to Antarctica. He and Prof. Taylor Griffith explored the west coast of McMurdo Sound in 1911 and 1912.

In 1920 his book "Reports on Maps and Surveys, Scott's Last Expedition," was published. He subsequently wrote about a dozen other books, on the Antarctic regions, surveying problems, certain aspects of outer space, and certain regions of Africa.

His "The Way to Ilala," published in New York in 1956, told much of the work and pilgrimage of Dr. David Livingstone. He related that the missionary-explorer lived off the land, eating native foods, but was never without a sextant, a compass, a nautical almanac, a chronometer, and a Bible.

Dr. Livingstone had little use for the type of missionary who spent his time trying to cover the Africans' natural nudity and attempting to suppress every native activity merely because it was native and therefore unChristian, the professor wrote.

The 1960 Debenham book "Antarctica" — also published here—was a vivid and richly factual account of the great Southern continent, the teeming life of its surrounding waters, and of the succession of expeditions that sought its scientific secrets through the years.

Professor Debenham believed that one day the polar blizzards would be harnessed as a source of electrical power.

Carl J. Lomen Is Dead at 85; 'The Reindeer King' of Alaska

The New York Times

SEATTLE, Aug. 17 — Carl J. Lomen, known as "the reindeer king" because of his role in developing the reindeer industry in Alaska, died Monday at his home here. He was 85 years old.

A Herd of 250,000

In the nineteen-twenties, the Lomen Reindeer Company, of which Mr. Lomen was founder and president, had 250,000 head of reindeer grazing over the lowlands near Nome. The company employed hundreds of Eskimos as herders.

Mr. Lomen and his wife made frequent trips to New York to popularize reindeer meat, an effort that never succeeded.

"It is similar to a medium lamb or mallard duck, a domestic, not a game meat," he told a New York audience in 1926.

About 10 years later, the Lomen company was forced to sell its reindeer interests to the United States Government. In "Fifty Years in Alaska," an autobiography published in 1955, Mr. Lomen ascribed the failure of his reindeer business to "bureaucratic bungling in Washington" and political pressures brought by the American beef industry.

Mr. Lomen, a native of Minnesota, went to Alaska with his father, G. J. Lomen, during the Gold Rush of 1900. His father became a Federal judge in the Territory, and the family lived at Nome.

As a young man Mr. Lomen saw a potential in selling the meat and fur of reindeer, which had just been brought over from Siberia. With his father and two brothers, he started Lomen & Co.

After the company lost its reindeer interests, it changed its name to the Lomen Commercial Corporation, and specialized in shipping and other financial interests in Alaska. Mr. Lomen was president at his death.

He is survived by his widow, the former Laura Volstead, daughter of the late Representative Andrew J. Volstead, for whom the Prohibition Act was named, and a brother, Ralph Lomen.

3 Britons Are Killed As Vehicle Plunges Into Polar Crevasse

A three-man British scientific party and its over-snow vehicle have been lost down a crevasse in Antarctica, it was learned here Oct. 26

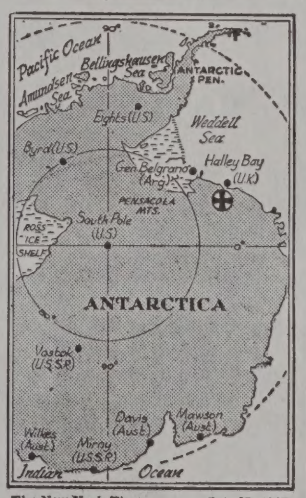
The party was apparently on a short trek from the British station at Halley Bay, on the Weddell Sea, testing a new system for measuring ice depths with radar-like radio pulses. It is believed here that the equipment and records were lost, as well as the men.

This is one of the worst trail accidents in Antarctica since the spurt of exploration initiated by the International Geophysical Year of 1957-58.

One of those lost was Jeremy Bailey of the Scott Polar Research Institute of Cambridge University, in England.

Presumably the vehicle broke through a snow bridge over an undetected crevasse. Giant cracks slice deep into the Antarctic ice sheet, particularly near the coast, or where the flow of ice is disturbed by buried mountains. Often these crevasses are large enough to engulf a large vehicle.

In 1956 an American tractor weighing more than 30 tons broke through the snow lid over such a crack near Little America, carrying the driver to his death.



The New York Times Oct. 27, 1965

DISASTER SCENE: cross marks the site where a British snow vehicle and three men fell into crevasse.

PERMAFROST

Nearly one - fourth of the earth's surface is permanently frozen ground. Scientific observations suggest that permafrost, as it is called, extends to 1,500 feet deep in northern Alaska and Canada, and even deeper in northern Siberia.

GEORGE H. BLACK, 69, ON BYRD POLAR TRIPS

The New York Times

FORT WORTH, July 30 — George Hamilton Black, a merchant seaman and decorated combat veteran who was Rear Adm. Richard E. Byrd's supply officer on two polar expeditions in the nineteen-twenties, died of lung cancer Wednesday. He was 69 years old.

Mr. Black, a retired Army sergeant who served in both World Wars and the Korean War, joined Admiral Byrd in 1926, when the Admiral and Floyd Bennett, his pilot, flew over the North Pole. Mr. Black's station in the expedition was an Arctic archipelago.

Two years later, after working on a rubber plantation in Liberia, Mr. Black went with the explorer to the South Pole. On that expedition, he was caught in a blizzard miles from the base at Little America, and was temporarily stranded.

In the First World War, Mr. Black saw action in the Navy. He won the Navy Cross for heroism in a sea battle off the coast of Ireland.

He went into World War II as a Canadian infantryman before the United States entered the war, and he won the British Distinguished Service Cross for destroying a German machine-gun nest near Dieppe. His other medals included the Silver and Bronze Stars.

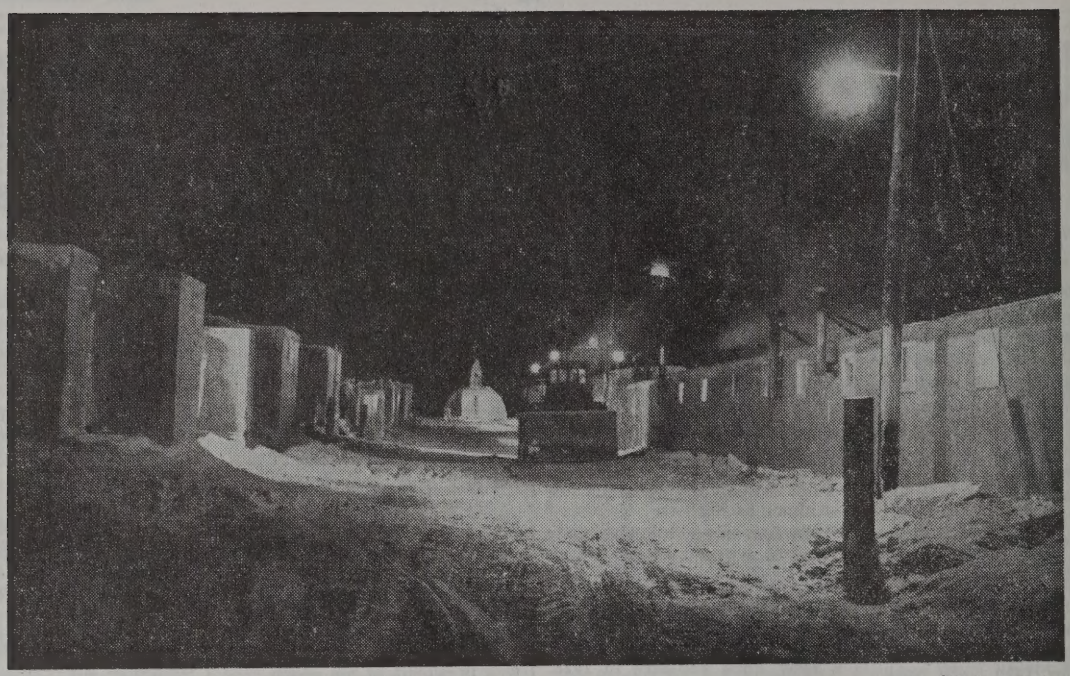
Mr. Black leaves his second wife, the former Esther Van Luster. His first marriage, to Emma Daves, ended in divorce.

EXTINCTION TREND ENDING FOR OTTERS

WASHINGTON — The Fish and Wildlife Service estimates the present population of sea otters at around 40,000, scattered from the rock-bound coast of California to the Aleutian and Kuril Islands. Fifty years ago there were less than a thousand.

The sea otter's decline began in the seventeen-fifties when shipwrecked Russian sailors wintered on a barren island off Alaska and survived by eating what they called "sea apes," the National Geographic Society says. The survivors later built a ship and returned home with 900 soft, deep pelts of the sea otter.

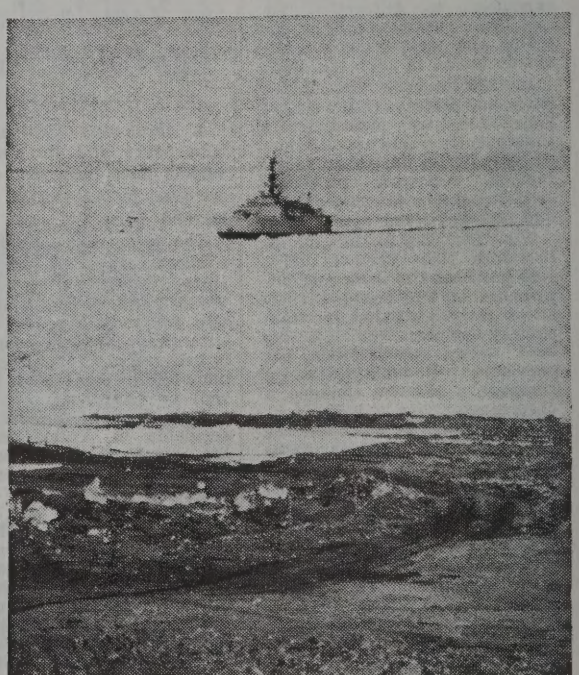
Czars and noblemen of imperial Russia and mandarins in China soon prized the silky fur for trimming their opulent robes. Fur hunters sailed to America's western coast. Choice pelts sold for as much as $2,500 each. In one year, 50,000 pelts were taken.



U.S. Navy Photo

This street scene at McMurdo Station in Antarctica was taken during the winter season there and shows some of the facilities used by United States personnel working at the polar outpost

MAIN STREET U.S.A. IN ANTARCTICA — Bringing home the water is an American tracavator at McMurdo base, left photo, which searches out clean snow and dumps it into the snow-melter, the only present method of getting precious fresh water at the base. The work on a sea-water distillation system is expected to be completed this season.



'FOLLOW ME' — An American ice breaker arrives at McMurdo Sound. The ice breaker's motto is "Follow Me". The rugged, ships crash through the ice to make a path for supply ships who bring in tons of supplies and men each season.